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Art. I.—LIGHT-HOUSES.

' Now twilight dims the water's flow,
And from the tower the beacon's glow
Waves flickering o'er the main."

SCHILLER.

HE who has ventured out upon the deep ocean and heard the dash of its breakers, and the wild revelry of the storms, that whistle, and whirl, and rage, and roar, and pile up mountains, as it were, to the stars, only can comprehend the true poetry of the LIGHT-HOUSE. Its star on the horizon gleams o'er the water and tells a tale of home and its joys to the weather-beaten mariner. Who has ever contemplated this soft lustre at evening, or at midnight, or in early morning, without blessing its mission of charity and love?

These beacons of the ocean are of great antiquity; men have even imagined that the Cyclops, so famous in classic song, were none other than the keepers of light-houses, or perhaps light-houses themselves metaphorically personified. This, however, is inconsistent with the well-remembered lines of the *Odyssey*.

Εν 3' ουτις τὴν νῆσον ἰσέδρακεν ὀφθαλμοῖσιν
"Οὐτ', οὐν κυματα μακρὰ κολιόδμενα τοτὶ χερσὸν
Εἰσιδόμεν τρὶν νηὰς ἑὸς ἐλμους ἐπικεῖσθαι.—IX. 146.

About the year 300 A. C., the great Colossus of Rhodes was constructed, the wonder of all antiquity; between its ponderous legs the "tallest admiral" of the times could sail, and its great height sufficed as a beacon for distant navigation.

The Pharos of Alexandria was a tower raised to a lofty altitude, and supported ever upon its top fires sufficiently large and high to be observed forty miles across the deep. The tower of Corrunna was also a famous light-house in the earliest days of Ireland.

One of the most celebrated modern lights is the Tour du Corduan, at the mouth of the Garonne, built in 1589, 197 feet high.

The Eddystone tower is equally remarkable; it was constructed upon the rocks near Cornwall, England, as early as 1696, but destroyed by fire in 1755, and rebuilt in 1759.

But space does not allow us to dwell much upon observations of

this kind. Our present paper will be devoted to a review of the light-houses and systems of the present day.

It will be remembered that in June 1845, the present distinguished head of the Treasury Department of the United States, in pursuance of those arduous duties and enterprises which have given character to his administration, dispatched Lieutenants Thornton A. Jenkins and Richard Bache, of the navy, to Europe, for the purpose of collecting all such information as might be had upon the systems of light-houses in use. A previous inspection of American light-houses had exhibited the most striking defects.

Messrs. Jenkins and Bache were instructed to report upon :

1. The organization of the light-house system in Europe.
2. The construction of light-houses.
3. The lighting apparatus.
4. Arrangement for securing necessary attendance upon the lights—their expenses and efficiency.
5. The classification, construction, cost, and modes of placing buoys, spindles, and other aids to navigation ; manner of building, fitting up, and mooring light-boats, and their cost of maintenance ; the Mitchell screw pile, &c., &c.

In June, 1846, the Report of these gentlemen, an elaborate work, accompanied with draughts, designs, &c., was presented to Congress with an able introduction by the Secretary of the Treasury.

I. The light-houses of GREAT BRITAIN are of two classes—public general, or coast lights ; harbor, or local lights ; or they are capable of this division : Trinity House Light Scotch Light, Irish Light, Local, or Harbor Light, Colonial Lights. The Irish and Scotch are in charge of particular boards at Edinburgh and Dublin. The local, or harbor, except those of Ireland, are individual corporations ; as, the Screw Pile Light, at Fleetwood, the corporation of Liverpool, etc. The same is true of the Colonial Lights. The whole number of lights in England in 1845 was 309, 121 being public general, 29 floating, 131 local, 28 harbor, &c. Buoys, beacons, and sea marks, are in charge of the respective light-house establishments.

The great and interesting subject of notice is the extensive corporation of TRINITY HOUSE. It has in charge all the public lights and buoys on the coast of England, and also, a superintendence over all local, or harbor lights in the kingdom ; no changes among which can be effected without its consent. It consists of thirty-one members, eleven being honorary and the others active, viz. : retired captains of the commercial marine, &c. ; there are a number of manager brokers attached, from whom vacancies in the corporation are supplied. The acting members have several committees charged with specific duties. Agents are appointed by the board ; superintendents of lights are appointed over districts, each being furnished with a vessel for visiting every point, and they report quarterly to both boards the most minute particulars. A civil engineer is employed for draughting all plans and directing the works ; and a scientific man to experiment in relation to combustibles, lights and towers, oils, etc., etc. The corporation have immense store-houses for supplies, buoys, anchors, cables, chains, oil, etc.

The LIGHTS OF LIVERPOOL, as we before stated, is a corporation, and has seven houses under its control—sixty buoys, ten land beacons, one floating bell, etc., etc. Of the houses, Rock, and Point

Lignas are noticed particularly. In order to afford the speediest relief to distressed vessels, Liverpool Bay is divided into squares and numbered; a vessel needing assistance is immediately telegraphed by the number of the square she is in. "The surveyor glancing his eye upon the chart, sees at once the position of the vessel in distress, judges what her probable wants are, from his knowledge of the dangers near her, and dispatches the steamer directly for the position indicated, &c." There are also a number of light-boats.

The SCOTTISH COASTS come within the jurisdiction of the commissioners of northern lights. They are twenty-five in number, and taken from civil life without compensation. Fifty-one local lights are under the control and management of trustees, and supported by a tax upon shipping. There is an engineer charged with the superintendence of the general lights.

The LIGHT-HOUSES OF IRELAND are under charge of the Ballast Board of Dublin, composed of twenty-two members. The consent of the Lord-Lieutenant is necessary to the construction of new light-houses, and the approval of the London Trinity Board.

The light-house department of FRANCE is attached to the duties of the Secretary of State for the Interior, and under the control of the Minister of Public Works. A central board of eleven distinguished scientific and professional men have the management of all light-houses, &c. There is a central workshop and depot in Paris, for all mechanical fixtures, etc. The whole expense of the system is defrayed from national funds, and not charged upon shipping.

The light-house establishment of HOLLAND is under the control and management of the department of marine. Its general superintendence is in the inspector-general of pilotage. It is supported by duties upon commerce.

There is but one light-house belonging to the government of BELGIUM, viz.: at Ostend. There are also three tide and two harbor lights.

The general board of customs and commerce, at Copenhagen, have control of the DENMARK lights. The establishment is supported by light or sound dues, which are levied upon vessels of all nations passing the sound and belts.

The PRUSSIAN lights are under the control of the minister of finance, and belong to the division of commerce. That department of the government decides upon the erection of all new establishments, etc., etc.

The lights of SWEDEN AND NORWAY are supported by duties upon commerce; while those of Russia, like those of the United States, are maintained by the national treasury.

II. We come now to the construction of light-houses. Those of England are most perfect and solid—the old being of cut-stone, the new of hard brick. Economy is not considered, but durability and beauty. The Maplin Sands light is constructed upon Mitchell's screw-pile, "by means of which, and by those means alone, foundations have been laid in sand-banks covered at all times by the sea, and on which light-houses have been erected which have now endured, uninjured, the storms and casualties of many winters. The foundation of the Maplin light-house was laid seven years since,

namely, in the summer of 1838; and the Fleetwood light-house, which was commenced in the summer of 1839, was lighted on the 6th June, 1840, upward of five years since; since which time, with the exception of a little paint, we understand that neither house has required the smallest repair."

Cast-iron towers are being gradually introduced, and have been built at Jamaica, Bermuda and Ceylon. "The chief alleged advantages of the cast-iron over the stone and brick towers are these: cheapness, facility of erection in any place, greater strength against vibrations in hurricanes, freedom from injury by lightning in tropical climates, and against the chances of earthquakes or fire."

"The light-house towers of France are constructed in the most substantial and perfect manner possible, without there being any appearance of unnecessary or wasteful expenditure. Great care is taken in the interior arrangements of the buildings, so that they may best answer the requirements of the service. Many of the towers are constructed of a soft stone of a rather peculiar kind, which hardens by exposure to the action of the atmosphere; those constructed of that material are lined inside with brick, leaving a sufficient space between the interior of the outer wall and the brick to allow a free circulation of air, thereby securing the building from dampness. Hard burnt bricks are preferred for light-house towers, when circumstances will admit of their being employed, particularly in fitting up the oil apartments, which are placed below the surface of the earth, to insure as equable a temperature during the whole year as may be possible to attain. The keepers' apartments are finished and fitted up in a plain, substantial, and economical manner, combining all the necessary accommodation and comfort. There is a room fitted up, and properly furnished, for the accommodation of the engineer, inspector, or other person authorized to make official visits at each light station. Especial care is taken to secure proper ventilation to the towers and lanterns—all the necessary fixtures about the light-rooms, lanterns, apparatus, &c.—the most minute, and apparently unimportant details in the exterior and interior arrangements; in short, nothing could combine greater perfection in stability, in usefulness, and a proper economy, than is perceptible in everything connected with the lighthouses visited by us on the coasts of France."

In Prussia the buildings are chiefly of stone. In 1843 a small iron one was erected at Dantzic for a harbor light.

III. *The lighting Apparatus.*—The lights of Trinity Corporation are fixed, revolving, flashing, colored, double, &c., &c. The number of burners varies from 1 to 30. The reflectors are generally 21-inch parabolas.

"The lanterns and lighting apparatus are constructed with the same regard to stability and durability as in the construction and fitments of the buildings; the frames for the lamps and reflectors are of iron, very solidly fitted together, and the lamps and reflectors so securely placed that it would be almost impossible to get them out of their proper positions; the light-rooms are large, and of good height; the glazing is ordinarily of thick plate-glass, of 30 inches broad to 24 inches high, set into composition metal frames, and the roof of the lanterns of copper. The light-rooms and domes of the lanterns are

painted white, and they retain their cleanly appearance, by care and an occasional application of soap and water, for a considerable length of time; the lanterns are free from smoke, notwithstanding the different methods that are employed to produce a proper ventilation."

"The material for burning in the English lighthouses is pure "*winter bagged sperm oil*." The results of the experiments to test the value of different gases for light-house purposes, have not been satisfactory to the Trinity board, or sufficiently so to warrant their introduction into any of the lighthouses under its control. They regard the sperm oil, or refined rape seed (*colza*) oil, as preferable materials; the latter is the cheaper in England; it has not, however, been generally introduced. In fact, the determination to use it at all is of very recent date."

Gas is used in local lights with great success. The same is true of Scotland.

Mr. Allan Stevenson, in his report to the House of Commons, says: "No success has attended any attempt to render the Drummond light, which was at that time a subject of so many experiments, at all applicable to light-house purposes; nor am I aware that any one has ever indicated the direction in which inquiry might, with the greatest chance of success, be employed. All the changes that have been proposed have consisted in burning various gases under certain modifying circumstances; but I see no reason for believing that an increase of intensity sufficient to warrant the introduction of gas into light-houses has been obtained. Its use is unquestionably attended with risk of irregular exhibition in situations so remote as most light-houses are; and in some situations it is wholly inapplicable (as in the Bell Rock and Skerryvore), and also in all revolving lights on the reflecting principle. In ordinary weather the present lights are seen as far as the curvature of the earth allows; and unless a light powerful enough for the penetration of a fog can be found, I see no inducement to run any risk as to the due and regular exhibition of the light, for the sake of any small increase of its intensity."

"The lights of Ireland, with one exception, are fitted with parabolic reflectors, made of copper, and silver plated, generally of 21 inches diameter, although some are larger. The burners used are Argand, about seven-eighths of an inch in diameter, constructed on the last and most approved plan. The number of reflectors for each light-house varies from 1 to 27. The lamps and reflectors are made at the Soho works, Birmingham, as a general rule.

"At present there is but one dioptric light in Ireland (at St. John's Point). It was constructed at Newcastle-upon-Tyne, by Cookson. There are three others proposed; one to be placed in a new tower, and the other two in old towers. The dioptric system is advocated by the engineer upon the score of economy, as well as superiority of light produced.

"The French mechanical lamp is employed successfully in the St. John's light-house, and the same kind of lamp will be used in the three proposed lights when ready for lighting. Mr. Halpin, the assistant inspector (engineer), does not approve of Mr. Wilkin's catoptric lamp for reflectors. The Argand is preferred by him.

The lanterns are of iron, with strong, though not thick sashes:

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with glass three-eighths of an inch thick, and ordinarily 40 by 24 inches. The best plate-glass is used *only*; and the frames of the lanterns constructed with particular reference to their not obstructing unnecessarily the light by being too heavy. The domes are of copper; no lightning rods, that we saw. Particular care is bestowed upon the ventilation of the towers and lanterns; although, as yet, Dr. Faraday's tubes have not been introduced.

There are only five modes of distinction employed in Ireland, viz.: fixed white, fixed red, revolving white, revolving red and white, and intermitting lights.

"All the lights, buoys, beacons, &c., of Ireland, are supported by light dues, as in England and Scotland. The duties are one-quarter of a penny per ton for each light passed. No dues are levied for buoys and beacons. Harbor lights, being under the management of the ballast board, are placed upon the same footing as the public general or sea-coast lights. All supplies, as a general rule, are furnished by contract. The contracts are entered into upon sealed tenders, notice having been given for a sufficient length of time in the newspapers, of the articles required. The contracts are entered into annually for all articles for the ensuing year. Provisions, supplied under contract, are furnished to the men on board of the light-vessels in addition to their wages."

(To be continued.)

Art. II.—SUGAR—ITS CULTIVATION, MANUFACTURE, AND COMMERCE.

No. I.*

VEGETABLE PRINCIPLES—PROPERTIES OF CANE SUGAR—RE-AGENTS—MOLASSES, TREACLE—CANE JUICE—SACCHARINE MATTER—ANALYSIS OF SUGAR CANE, VARIETIES OF SUGAR MILLS—MOTIVE POWERS, ETC.

THE extraction of sugar from its juices is said to be a purely chemical process, and of consequence most perfectly conducted wherever science prevails the most. In the manufactories of the metropolis it will be found in a much higher state of advance than in colonial work-houses and estates, however extensive.

In the United States we have been latterly convinced of this, and are taking those steps which are suggested. The extraordinary advance which Louisiana evinces, speaks volumes for this better spirit.

* We have been for some time collecting everything that could be had upon sugar as cultivated and manufactured at home and abroad, and have published many able articles from different sources of highest character. In this search we spare no pains, intending to prosecute it to the utmost extent. We have sent to Europe for material, and already been furnished with much that is valuable by an intelligent correspondent at London. The results in our own country are continually forwarded us. Our present article is the first of a series which shall embrace everything. We believe that the sugar planters and manufacturers of our country will sustain this enterprise and labor, which is likely to prove so valuable to them. We beg their co-operation and correspondence upon this subject. As we progress, plans of machinery in every mode of preparation and improvement will be published without regard to expense. Our present number is based upon the valuable work of Dr. Evans, about to be published in England, a copy of which has been sent us in advance, by a friend in that country. For other valuable information upon sugar, the reader will refer to our Review, Vol. I., 53, 54, 330; II., 322, 212, 214, 267, 422; III., 118, 231, 233, 245, 580, 248, 269, 294, 299, 301, 341, 376-395, 442; IV., 41, 128-136.

Her liberal planters pause at no pains or expense ; many of them are ever engaged in prosecuting their experimental researches ; the progress is continual, and the effort unremitting. Were it not invidious, we could call by name many of these planters ; some of them have sent agents to Europe to examine machinery and movements. The expense of improvement and apparatus is the last consideration ; the great point is *perfection*.

Oxygen, hydrogen, nitrogen and carbon are the chemical constituents of all substances produced by the vital action of plants. Thus the water taken up by the roots and carried into the leaves, as sap, to be exhaled, to liberate oxygen, etc., thus changing its character, to return fit for the nutrition of the plant, contains two of these elements. "All the proximate principles which enter into the structure of a plant, are formed by a blending together of their elementary bodies in various proportions."

If in any of these compounds nitrogen be present, it is said to be *azo-tized*, if otherwise, *non-azotized*. Thus dextrine, starch cellulose, lignin, or woody fibre, gums, mucilage, and *sugar*, are of the latter class.

But sugar is also a product of the animal kingdom ; thus, the sugar of milk, of diseased urine, etc. Vegetable sugar is that of the cane of fruits, of manna, etc. The *glucose*, or fruit sugar, is uncrystallizable, undergoes rapid vinous fermentation, and has a peculiar combination of elements. *Mannite*, the ingredient of manna, is contained in the juice of plants in New South Wales, and certain sea-weeds—does not ferment. The *cane-sugar* consists of carbon, 12 atoms ; hydrogen, 10 atoms ; oxygen, 10 atoms ; and 1 atom water. Sugar-cane absorbs readily the chloride of sodium and potassium, and probably the sulphates. Where these salts abound in soils the sugar will possess purgative qualities. The sodium, or common salt, forms a deliquescent compound, and thus the difficulty of crystalizing sugar made from saline soils.

Cane sugar may also be obtained from many grasses, maize, guinea corn, roots of the carrot, beet, &c. ; from pumpkins and melons, from the sap of the palm, &c. When pure, it is solid, transparent, and colorless ; crystals, rhomboidal prisms ; but subject to modification ; soluble in half its weight of water at 60°, and $\frac{1}{2}$ at boiling point, sparingly in cold alcohol ; specific gravity, 1600, water being 1000 ; at 300° it melts, and forms an uncrystalized mass, which, on a much greater application of heat, becomes uncrystalizable ; at 500° the black substance *caramel* is formed.

The sugar cane is cultivated chiefly in the West Indies, Brazil, Louisiana, and the Mauritius, and is of the following chief varieties :

1. Common or Creole cane, so called from being introduced from the new world.
2. Yellow Bourbon.
3. Yellow Otaheite.
4. Otaheite, with purple bands.
5. Purple Otaheite.
6. Ribbon cane.

The *Muscovado sugar* is all such as contains any foreign matters, as silica, phosphate of lime, carbonate of lime, organic matter, potash ; being the state of all colonial and plantation sugars.

Molasses is the mother liquor after the crystalization of cane su-

gar. It contains pure sugar and impurities. Twenty pounds Louisiana molasses gave 15 lbs. of the former, and 5 of the latter, including water.

Treacle is a late product of the refinery ; it does not crystalize ; is of a dark brown color ; specific gravity, 1380–1400.

Fig. 1.

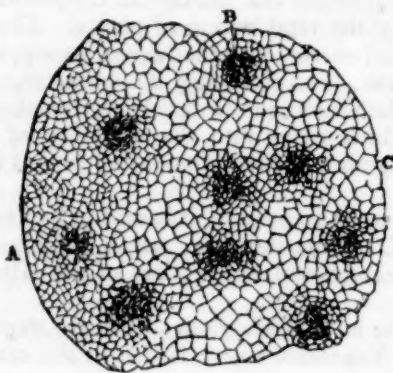
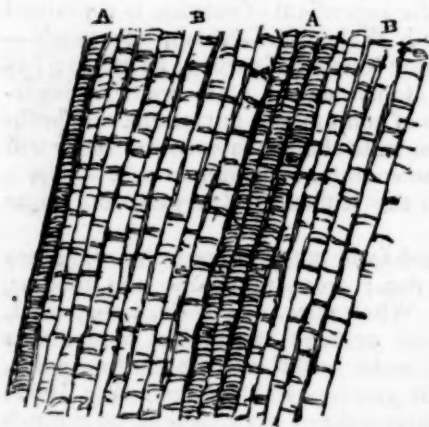


Fig. 2.



The plant is perennial. The stem, cut horizontally, is shown in figure 1, and when examined by a microscope, shows a series of hexagonal cells, formed of delicate tissue and closed laterally above and below, each being entirely independent. A series of vessels inclosed in woody sheaths is also found, and best shown by a vertical section.

Thus, A A, fig. 2, are the vessels ; B B, the cells ; the former being formed of rings, and running from one extremity to the other of the joint, forming a lacework. Here are situated the knots. The eyes, or germinal spots of the plant are found here. The vessels contain a crude sap or fluid ; the cells a solution of pure sugar and water. Between these there would appear to be a continual communication. The sugar cells supply nourishment to the rapidly vegetating cane, but this supply is discontinued on maturity.

Cane-juice is the expressed product of crushed cane, and of consequence, consists of other substances besides sugar and water.

It is first opaque, frothy, and of a yellowish green or greyish ; sweet taste ; acid reaction on test-paper, and separable by filtration into a transparent yellow fluid, and a dark green fecula. This fecula or scum, when separated by heat and lime, consists of wax 7.5, green matter 1.3, albumen and wood 3.4, bi-phosphate of lime 0.5, silica 2.1, and water. The transparent liquid consists of water, sugar, saline matters, coloring principles, etc.

The experiments of Peligot and Evans on filtered cane-juice prove—

1. That cane-juice, without the addition of any foreign matter, when its water is evaporated at the ordinary temperature of the atmosphere, does not produce crystals of sugar.

2. That when it is exposed to a temperature a little below that of

boiling water for the purpose of concentration, crystallization of a part, but not of the whole, of its sugar takes place.

3. That on the addition of alcohol to the concentrated syrup, nearly the whole of it is converted into a solid crystalline mass on farther evaporation.

Filtered cane-juice at rest loses its transparency, becomes viscid, and ferments. Boiled cane-juice changes with great rapidity its chemical character. The casein which it contains is insoluble in pure water; acidulated, or rendered alkaline, by vegetable acids or potash, soda, or lime, not in excess, the casein may be separated. Without this separation crystallization is imperfect, and fermentation ensues. Sulphurous acid, on a base of zinc or lime, will prevent the latter action, but ought never to be required. The saline matter of cane-juice is 2 to 4 parts in 1000.

Dr. Evans, writing of the West Indies, says: "There are lands on which the canes do not seem to ripen, owing to the saline soil stimulating too large a growth, and preventing a deposit of sugar in the cells. Drainage is a chief remedy here. A luxuriant vegetation followed by continued drought, checks the growth, and the plant shows a disposition, as it is called, to arrow. This drought occurring when the canes have attained ordinary growth, is beneficial.

The evil effects of *drought* are thus explained:

In consequence of injury that the structure of the stem has suffered, the liquid contents of the different organs have been mingled, the azotized matters have acted as fermentative agents, and the sugar, in whole or in part, has been converted into gum, glucose, and lactic acid, the one or the other of them predominating in different cases.*

That of early frost. The frost causes an expansion of the fluids, and a rupture of the organs which contain them. An intermixture of the saccharine and nitrogenized principles consequently ensues. Should the frost continue, no evil results are observed, for at such a temperature catalysis is prevented; but should a thaw succeed, the cane-juice becomes viscid and mucilaginous, the syrups resulting from it will not crystallize, and the only use to which they can be applied is that of distillation.

Table representing the Specific Gravity of Solutions of Sugar of various strengths.

Specific gravity.	Sugar in 100 parts.	Specific gravity.	Sugar in 100 parts.	Specific gravity.	Sugar in 100 parts.	Specific gravity.	Sugar in 100 parts.	Specific gravity.	Sugar in 100 parts.
1000	.00	1057	.14	1118	.28	1187	.42	1263	.56
1004	.01	1062	.15	1123	.29	1193	.43	1268	.57
1008	.02	1066	.16	1128	.30	1199	.44	1273	.58
1012	.03	1069	.17	1133	.31	1204	.45	1279	.59
1016	.04	1073	.18	1137	.32	1209	.46	1284	.60
1020	.05	1077	.19	1142	.33	1215	.47	1289	.61
1024	.06	1081	.20	1147	.34	1220	.48	1295	.62
1028	.07	1085	.21	1152	.35	1225	.49	1301	.63
1032	.08	1090	.22	1157	.36	1230	.50	1307	.64
1036	.09	1095	.23	1162	.37	1235	.51	1312	.65
1040	.10	1100	.24	1167	.38	1241	.52	1317	.66
1045	.11	1104	.25	1172	.39	1246	.53	1321	.666
1049	.12	1109	.26	1177	.40	1252	.54	....	..
1053	.13	1113	.27	1182	.41	1257	.55	....	..

* Dr. Evan's Treatise on Sugar, pp. 62, 235.

Table of the Density of Solutions of Sugar, according to the Scale of Beaumé.

Degrees of density.	Sugar in 100 parts.	Degrees of density.	Sugar in 100 parts.	Degrees of density.	Sugar in 100 parts.	Degrees of density.	Sugar in 100 parts.	Degrees of density.	Sugar in 100 parts.
1	.018	8	.144	15	.276	22	.406	29	.541
2	.035	9	.163	16	.294	23	.424	30	.560
3	.052	10	.182	17	.315	24	.443	31	.580
4	.070	11	.200	18	.334	25	.462	32	.601
5	.087	12	.218	19	.352	26	.481	33	.622
6	.104	13	.237	20	.370	27	.500	34	.644
7	.124	14	.256	21	.388	28	.521	35	.666

The method usually resorted to by chemists for ascertaining the amount of sugar contained in a given solution, is either the following or one closely resembling it. Presuming that cane-juice is the saccharine fluid to be examined, a weighed quantity of it is filtered, and a portion of very strong alcohol, equal to half its bulk, is added to it; a flocculent precipitate immediately takes place, which is removed by a renewed filtration. The liquid is then placed under the receiver of an air-pump, into which is, at the same time, introduced a vessel containing a quantity of perfectly caustic lime. On the air being exhausted, the water, in consequence of the affinity which its vapor and the lime have for each other, is evaporated, while the alcohol remains. In the course of ten days or a fortnight, the alcohol becomes too strong to retain the sugar in solution, and this substance is, consequently, precipitated. The precipitate is then to be washed in strong alcohol, and, having been carefully dried, it may be weighed and its amount ascertained.

ANALYSIS OF THE ASHES OF THE SUGAR-CANE.

	1	2	3	4	5	6	7	8	9	10	11	12
Silica	45.87	42.80	66.46	41.37	66.46	50.00	45.13	17.64	26.38	52.36	68.73	54.59
Phosphoric acid	3.78	7.89	8.23	4.56	8.16	6.96	4.88	7.37	6.30	13.64	3.90	8.61
Sulphuric acid	6.46	10.84	4.65	10.83	7.52	6.69	7.74	7.97	6.08	5.21	5.25	1.92
Lime	9.16	13.30	8.91	9.11	5.79	8.99	4.49	2.84	5.87	10.44	11.62	14.36
Magnesia	3.46	3.88	4.50	6.92	15.41	13.01	11.90	3.95	5.4	5.43	5.61	5.30
Potassa	25.58	12.01	10.63	15.99	11.83	13.49	16.97	32.90	31.21	10.00	7.46	11.14
Soda .....	..	1.39	..	..	0.57	1.33	1.64	..	..	0.90	..	..
Chloride potassium	3.27	..	7.41	8.96	..	..	..	10.70	11.14	..	16.06	0.84
Chloride sodium	2.02	1.69	9.21	2.13	3.95	3.92	7.25	17.12	7.64	4.29	2.27	3.83

The above results were condensed by Prof. Shepard of South Carolina from the results of Mr. Stenhouse. Prof. S. remarks:

Nos. 1, 2, 3, and 4 were very fine full-grown canes from Trinidad, consisting of stalks and leaves, but without the roots. Nos. 5, 6, and 7 were similar canes from Berbice; No. 8 from Demarara; No. 9, of full-grown canes, but with few leaves, from the island of Grenada; No. 10 from Trelawny, Jamaica, consisting of transparent canes in full blossom, grown about six miles from the sea, and manured with cattle dung; No. 11, of transparent canes, from St. James', Jamaica, growing about two hundred yards from the sea, being old ratoons, and also manured with cattle dung; No. 12, young, transparent canes three and a half miles from the sea, and manured with cattle dung, guano, and marl.

From these analyses, it appears that the cane for successful cultivation requires a very large quantity of silicate of potassa, and also a considerable amount of the phosphates. Few cultivated plants, except the cerealia, require so much. Wheat, or any of the cereals,

necessarily causes the removal of a portion of the valuable inorganic constituents of the soil, such as the alkalies, phosphates, &c., which can only be returned to it indirectly; but with sugar the case is quite otherwise. Sugar is a purely organic substance, consisting of carbon and the elements of water, all of which can be derived from the atmosphere, and contains neither alkalies nor phosphates; so that if the ashes of the canes were carefully collected and returned to the soil in an available state, there is no reason why cane might not be grown upon the same lands almost indefinitely.

In the West Indies, where wood is scarce, the crushed canes are employed as fuel, under the coppers of the boiling-house, to concentrate the syrup, and as the heat required is great, a large amount of the silica and the alkalies present is converted into a hard, insoluble glass, which, in this form being useless, is thrown away. We can, therefore, readily understand the reason of the rapid exhaustion of their sugar-lands, and the comparatively slow wearing out of those in Louisiana, where, from the abundance of wood, the cane-trash is never thus employed, and where, in addition to the inorganic ingredients of the cane, the soil receives (at least where the plantership is what it ought to be) the almost equally valuable mineral constituents of the wood itself.

Having examined the physiology and structure, varieties and chemical ingredients of cane, the next step will be to determine the mechanical means used for the extraction of its juices.

The fluid contents of a cane, according to Evans, contain *ninety per cent.* of the entire structure of the stem.

The Sugar Mill.—The mode of expression is by rollers. M. Duprez, an agent of the French government, having experimented on the canes in Guadaloupe, found the quantity of juice in every 100lbs. crushed

1. By mills having horizontal rollers; the motive power not stated.....	61.2 lbs.
2. By mills; motive power, steam.....	60.9 "
3. By mills; motive powers, wind and steam.....	59.3 "
4. By mills having vertical rollers.....	59.2 "
5. By mills; motive power, cattle.....	58.5 "
6. By mills; motive power, wind*.....	56.4 "

The average of all these experiments being 56 per cent. only. The result of M. Avequin on Louisiana cane, was 50 per cent. Mr. Thompson of Jamaica states 50 per cent. as the average throughout the island of Martinique. Dr. Evans ventures 47 per cent. as the lowest, 61 as the highest, in the West Indies. A mill in Madeira gave 47.5 and 70.2 of juice.

The mill was a small one, made at Aberdeen about two years previously, on the ordinary principle, with horizontal rollers, and the motive power was cattle. During the experiment which furnished the last and largest result, the rollers were braced more than usually tight, and the number of canes introduced at a time were five or six, being the utmost that the strength of the cattle would admit of. The canes were squeezed once only; indeed, the megass was too much lacerated to admit of its being passed between the rollers a second time with advantage.

These low results, Dr. Evans supposes, would compare favorably

* Dr. Evans' Treatise on Sugar, p. 75.

with those taken carefully throughout all the British colonies for the following seasons :

1. Because we can scarcely expect to find superiority, or even equality, where no attempts have been made to obtain it.

2. That when we are ignorant that a deficiency exists, little pains will be bestowed to correct it.

3. When, from the force of circumstances, more attention is paid to the obtaining of an abundant supply of megass, to serve as fuel for the concentration of the cane-juice of the following year, than I, at least, have ever seen evinced for obtaining a full and adequate supply of juice for the present.*

The Hydraulic Press.—This has been proposed to substitute the mill, and introduced into Jamaica and St. Vincent, but the results are not yet given. It was even suggested that the canes, cut into thin slices and dried, be forwarded to Europe for more perfect manufacture. The trial from Guadaloupe failed; the canes undergoing in the passage decomposition.

A new patent for extracting juice was lately taken out by M. Michiel. It consists in cutting the canes into thin slices and submitting them to the action of lime and water, to coagulate and render insoluble their nitrogenized constituents. This, it is thought, will extract the whole of the saccharine matter. Doubts are expressed as to its practicability, economy, and dispatch for large estates.

To give the greatest efficiency to the sugar-mill, Dr. Evans suggests the following rules, by means of which he thinks 20 per cent. more of juice may be obtained than is usually, without additional cost.

1. The rollers should be made to approximate as closely as the work which they have to perform will admit of. In mills, in which the rollers observe a vertical direction, the space between the first and second should scarcely, if at all, exceed 1-4 of an inch, while a distance of 1-6 of an inch is the most that should be allowed between the second and third. When they are placed horizontally, the upper one ought to observe a space of 1-5 to 1-4 of an inch from the two lower. These distances can never, perhaps, be accurately given in every case, but the requisite degree of bracing should always be strictly attended to.

2. The velocity of the rollers should be rendered as uniform as possible, not by diminishing the amount of the motive power but by a carefully regulated supply of canes.

3. The canes when thrown upon the feeding board should be upon the same plane, and never suffered to cross each other, otherwise the motion of the rollers will be checked, and the canes will be submitted to unequal pressure.

4. The megass should invariably be repassed between the rollers, so as to extract, as much as possible, the juice which still remains in it.

When the canes are rich, and their juice of considerable density, the megass should be sprinkled with a little water, or, where it is practicable, exposed to the action of steam before it is submitted to the pressure; but when the canes are large, green, and watery, this may be dispensed with.†

The *three-roller mill* has the disadvantage of re-absorbing a part of the cane-juice in the spongy megass and a loss of power. Those with *five rollers* have been used in Cuba, Bourbon, and the Mauritius, which gave 70 per cent., a great increase of motive power being, however, necessary. *Four-roller mills*, two below and two above, requiring little more motive power than the three-roller, have given 70 to 75 per cent. of juice.

The motive power applied to mills is animal, wind, water, and steam. In many of the English colonies *mules* are used, but are considered bad economy. *Wind* is chiefly applied in Barbadoes, with its usual advantages and disadvantages. *Water* has been little

* Evans on Sugar, p. 77.

† Ibid., p. 81, 82.

used. *Steam*, at the present day, may be considered the great agent of all economical mechanical motion.

Having obtained the juice in the desired quantities, the process to which it is submitted in course of manufacture, will be seen in other numbers of our series.

Art. III.—THE GRAIN AND FLOUR TRADE.

THE close of the commercial year, commencing on the 1st September, 1846, and ending on the 31st August, 1847, with the ascertained prospects of the crops of grain for the present year, renders this a favorable time to review the results of the grain and flour trade of the United States for the past year, and enables us to form some opinion of the prospects of the same for the year on which we have entered. Our object will be principally to notice the great staple grains of wheat and Indian corn, and their products of flour and meal, the quantity of other breadstuffs exported from this country being comparatively inconsiderable.

The accounts of exports of produce from the different ports of the United States to foreign countries, are not yet made up in full to the 1st of September, 1847, but the following table is so nearly complete, embracing, within a few days, the exports from the principal ports for the past year, that we adopt it.*

Exports of Flour, Indian Meal, Wheat, and Indian Corn from the principal ports of the United States to foreign countries, from September 1, 1846, to the latest dates received at New York, up to September 1, 1847.

Ports.	Bbls. Flour.	Bbls. In. Meal.	Bushels Wheat.	Bu. In. Corn.
New York, to August 30.....	2,113,166	.....	2,929,878	6,832,164
“ to August 10.....	.....	377,177	.....	.....
New Orleans, July 31.....	1,051,474	62,404	1,022,674	5,070,494
Philadelphia, August 13.....	500,944	313,560	663,082	1,409,720
Baltimore, August 7.....	652,576	97,148	183,090	1,715,640
Boston, August 10.....	145,625	30,869	15,173	583,697
Norfolk.....	39,014	9,018	.....	1,298,083
Richmond and Petersburg,.....	49,100	4,105	.....	27,164
Alexandria.....	18,245	1,244	23,542	97,544
Wilmington, Del.....	420	47,217	.....	8,400
Newark, N. J.....	91	2,043	.....	912
Charleston, S. C.....	747	.....	6,233	71,643
Savannah.....	1,807	254	.....	70,070
Mobile.....	1,571	.....	.....	44,214
Apalachicola.....	.....	.....	.....	40,000
Gardiner, Me.....	500	.....	.....	.....
Chicago, Ill.....	.....	.....	18,000	.....
Cleveland, Ohio.....	24,449	.....	202,962	3,080
Total.....	4,599,729	945,039	5,065,234	17,272,815

By changing the flour and meal into bushels, allowing 5 bushels of wheat to a barrel of flour, and 4 bushels of Indian corn to a barrel of meal, and adding the same to the wheat and corn, we have the following results:

Exports of wheat.....28,063,879 bushels.
Exports of Indian corn.....21,052,971 “

* To Sept. 1, the exports from Charleston were 151,704 bush. corn, 2,287 bush. wheat, 3,000 bbls. flour, 46 bbls. meal; from New Orleans, to Aug. 27 flour, 1,083,539 bbls.; wheat, 628,599 sacks; corn, 2,222,639 sacks.

The estimated value of the above exports is as follows:

Flour	4,599,729 barrels.....@ \$6 00.....	\$27,598,374
Indian meal	945,039 barrels.....@ 3 25.....	3,071,376
Wheat.....	5,065,234 bush.@ 1 25.....	6,331,572
Indian corn.....	17,272,815 bush.@ 80.....	13,818,252

Total\$50,819,574

The following comparative table of exports from the United States to foreign countries, of the same articles of breadstuffs for the previous ten years, divided into two periods of five years each, shows the great increase in the trade for the last year:

Year ending	Bbls. Flour.	Bbls. In. Meal.	Bushels Wheat.	Bu. In. Corn.
September 30, 1837.....	318,719.....	159,435.....	17,303.....	151,276
" 1838.....	448,161.....	171,843.....	6,291.....	172,321
" 1839.....	923,151.....	165,672.....	96,325.....	162,306
" 1840.....	1,897,501.....	206,063.....	1,720,860.....	574,279
" 1841.....	1,515,817.....	232,284.....	868,585.....	535,727
Total, first period.....	5,103,349.....	935,297.....	2,709,364.....	1,595,909
September 30, 1842.....	1,283,602.....	209,199.....	817,958.....	600,308
June 30, 1843 (9 months)....	841,474.....	174,354.....	311,685.....	281,749
" 1844.....	1,438,574.....	247,882.....	558,917.....	825,282
" 1845.....	1,195,230.....	269,030.....	389,716.....	840,184
" 1846.....	2,289,476.....	298,790.....	1,613,795.....	1,826,068
Total, second period....	7,048,356.....	1,199,255.....	3,692,071.....	4,373,591

TOTAL VALUE OF THE ABOVE EXPORTS.

	First Period.	Second Period.	Total—9 yrs. 9 mos.
Flour.....	\$31,418,999.....	\$34,965,179.....	\$66,384,178
Wheat.....	2,637,886.....	3,699,879.....	6,337,765
Indian corn and meal....	4,614,468.....	5,928,956.....	10,543,424
Total.....	\$38,671,353.....	\$44,594,014.....	\$83,065,367

It will be observed that the total value of the exports of the above staples for the last year, exceeds the total value of the same for either of the above periods of about 5 years each; and the value of the Indian corn and meal exported the past year, exceeds the total value of the same exported for ten years previous, by about eight millions of dollars.

If we take the annual average of exports of the same staples from September 30, 1837, to June 30, 1846, calling the same a period of ten years (which is near enough for our purpose), and compare these averages with the exports for the year ending in September, 1847, we have the following result:

	Exports—1847.	An. av. for 10 yrs. prev.	Increase.
Flour, barrels.....	4,599,729.....	1,215,170.....	3,384,559
Wheat, bushels.....	5,065,234.....	640,143.....	4,425,091
Indian corn, bushels.....	17,272,815.....	596,950.....	16,675,865
Indian Meal.....	945,039.....	213,455.....	731,584
Value of Flour.....	\$27,598,374.....	\$6,638,417.....	\$20,959,957
" Wheat.....	6,331,572.....	633,776.....	5,697,796
" Indian corn and meal,	16,889,628.....	1,054,342.....	15,835,286
Total.....	\$50,819,574.....	\$8,326,535.....	\$42,493,039

The foregoing statements show that the exports of flour, wheat,

Indian corn and meal, for the commercial year just closed, exceed in value the annual average exports of the same for a period of ten years previous, by about *forty-two millions* of dollars. It will be noticed that the exports from New Orleans for the month of August, and from various other ports for a part of the same month, or for a longer period, are to be added to the statement for the last year, which will swell the increase beyond the annual average to a larger amount than we have assumed. It is probable also that a considerable amount will be added to the exports of last year, for shipments of flour and grain sent to Europe via the St. Lawrence, from Detroit and other ports on the lakes.

The destination of wheat, flour, Indian corn and meal, for the two last years, it is well known, has been principally to Great Britain and Ireland. It may be interesting to know where have been our principal foreign markets for flour from 1800 to 1840.

The following statement shows the destination of wheat flour exported from the United States for two periods, namely, from 1800 to 1814 inclusive, and from 1815 to 1840, viz:

	For 15 years (1800-14).	For 26 years (1815-40).
British North America.....	352,517 barrels.	2,873,348 barrels.
West Indies	5,977,716 "	10,016,563 "
South America.....		5,307,607 "
Great Britain and Ireland...	1,881,296 "	4,103,205 "
France.....	36,713 "	347,296 "
Spain and Portugal	4,154,131 "	567,421 "
Other ports of Europe	147,508 "	642,028 "
Asia		167,431 "
Africa.....		82,087 "
Uncertain	1,094,957 "	206,350 "

The large exports to Spain and Portugal during the first period, were principally owing to the wars in the Peninsula. The supply of the allied British and Spanish armies created a great demand for American flour, which caused shipments to be made from the United States from 1810 to 1813, and sustained high prices in this country.

The annual average shipments continue about the same as they were previous to the war with Great Britain of 1812, viz.: nearly 400,000 barrels—while to Great Britain and Ireland the annual average quantity shipped was 125,419 barrels previous to 1815, and 157,815 barrels from the peace to 1840. From the latter year to 1846, our exports of wheat and flour to that kingdom greatly increased, and for the year 1847, of course, much exceed our exports of those staples to all other parts of the world combined.

Previous to the repeal of the British Corn Law, our best and principal trade with Great Britain was through Canada. For seven years previous to 1846, we sent into Canada 12,586,892 bushels of wheat (reducing the flour to wheat), while our direct trade to England, at the same time, amounted to only 7,764,588 bushels.

The exports from New York of breadstuffs other than flour, wheat, Indian corn and meal, from Sept. 1, 1846, to July 31, 1847 (being eleven months), have been so much larger than usual, that we subjoin them, as follows:

Rye flour.....	21,028 barrels.
Rye.....	993,869 bushels.
Barley.....	291,148 "

Peas and Beans	177,488 bushels.
Oats.....	416,147 "
Bread.....	50,498 barrels.

CROP OF WHEAT AND INDIAN CORN IN THE UNITED STATES.

The last annual estimate of the crops of the United States was made at the Patent office, for the year 1845. It is known that the crops of grain for 1846 were more abundant than those of the year previous, but we have not the means of forming a calculation on the increase.

The following are the estimates of the Commissioner of Patents, with regard to the crops of wheat and Indian corn for 1845. We have divided the United States into two sections—the first, embracing the Atlantic States and Michigan (as the markets of the latter are principally obtained via the Hudson river and the St. Lawrence)—the second, embracing the Valley of the Mississippi, excluding western Pennsylvania, Virginia and New York:

ATLANTIC STATES AND MICHIGAN.

	Wheat. Bushels.	Indian corn. Bushels.
New England States.....	2,263,000	11,946,000
New York.....	16,200,000	13,250,000
New Jersey.....	1,050,000	7,314,000
Pennsylvania.....	12,580,000	17,126,000
Delaware.....	440,000	2,713,000
Maryland.....	4,864,000	3,723,000
District of Columbia.....	15,000	35,000
Virginia.....	11,885,000	27,272,000
North Carolina.....	1,969,000	14,867,000
South Carolina.....	1,168,000	8,184,000
Georgia.....	1,571,000	13,320,000
Florida.....	.....	733,000
Michigan.....	7,061,000	4,945,000
Total—Atlantic States, &c. 61,181,000.....	125,448,000	
" Valley of Miss.	45,362,000	292,451,000
Total—United States.....	106,533,000	417,899,000

VALLEY OF THE MISSISSIPPI.

	Wheat. Bushels.	Ind. corn. Bushels.
Ohio.....	13,572,000	57,600,000
Indiana.....	7,044,000	30,625,000
Illinois.....	4,563,000	25,594,000
Missouri.....	1,535,000	15,625,000
Kentucky.....	4,769,000	54,635,000
Tennessee.....	8,340,000	70,265,000
Arkansas.....	2,427,000	8,350,000
Mississippi.....	378,000	2,167,000
Louisiana.....	.....	8,360,000
Alabama.....	980,000	16,650,000
Wisconsin.....	971,000	672,000
Iowa.....	793,000	2,928,000
Total	45,362,000	292,451,000

The above estimates appear to us to be overrated in some instances, and underrated in others. If we assume the aggregate, however, to be about the total amount of the crop of 1845, and add a small increase for that of 1846, we may take the wheat crop of 1846 at 110 millions, and that of Indian corn at 460 millions of bushels.* On this basis it appears that our exports to foreign countries, for the year ending Sept. 1, 1847, amounted in quantity to about 25 per cent. on the crop of wheat, and less than 5 per cent. on the crop of Indian corn.

With regard to the crops of the present year, the accounts received from all quarters of the United States justify the belief that the harvests, both for wheat and Indian corn, will be more abundant than those of last year. Perhaps it would be safe to estimate an addition of 15 per cent. on the quantity of wheat raised over that of 1846, and 30 per cent. on the crop of Indian corn, making about 130,000,000 bushels of the former, and 600,000,000 bushels of the latter.

Should the expectations of these increased quantities be realized with regard to these important staples, and the promise of abundant harvests in Europe be also realized, thus cutting off a large proportion of the great demand from abroad, which has stimulated and sus-

* This is about the estimate of the Patent office; an addition of 10 per cent. being added to 1845. We rather regard the estimate as much too low.

tained prices for nearly a year past, it would seem reasonable to calculate on a much lower range of prices for grain of all kinds than our farmers have been favored with during the recent famine in Europe. A moderate competition, however, from abroad in the demand for bread-stuffs, may enable them to become sensible of the value of the home market.

The importance of the home market for the consumption of the grain crops is shown by the following estimate made some years since in the Philadelphia Commercial List, with regard to the disposition of the wheat crop of 1840, to which we add a similar calculation respecting the crop of 1846:

	1840. Bushels.	1846. Bushels.
Estimated wheat crop	80,000,000	110,000,000
Used for seed, starch, &c.	7,750,000	10,000,000
Consumed for food in the U. S.	60,950,000	72,000,000
Exported to foreign countries	11,300,000	28,000,000

Of the Indian corn crop of 1846, we estimate that the 460 million bushels raised will have been thus disposed of:

Exported to foreign countries	22,000,000 bushels.
Sold to and consumed by non-producers	100,000,000 "
Consumed on the farms and plantations of the producers for human and animal food, seed, &c.	338,000,000 "
Total	460,000,000 "

A calculation made, however, upon the basis of the Commercial List, for the last season, we admit, is not by any means a fair one. The foreign demand has increased beyond measure more than the home, from the absolute destitution in Europe and failure of accustomed supplies. High prices at home, too, would operate to check consumption. It stands to reason, however, from the nature of the two demands, that the one originating at home must be many times the greater of the two, though at the same time the foreign may give character to prices, and in general does.

The following table will show the export of Indian corn from the United States for 57 years:

TOTAL EXPORTS OF CORN AND CORN MEAL FROM THE UNITED STATES FROM 1791 TO 1847.

Year.	Bushels Corn.	Bbls. Corn Meal.	Year.	Bushels Corn.	Bbls. Corn Meal
1791	1,713,214	351,695	1808	249,538	30,818
1792	1,964,973	263,405	1809	522,049	57,260
1793	1,233,768	189,715	1810	1,054,252	86,744
1794	1,505,977	241,570	1811	2,790,850	147,426
1795	1,935,345	512,445	1812	2,039,999	90,810
1796	1,173,552	540,286	1813	1,486,970	52,521
1797	804,922	254,799	1814	61,284	26,438
1798	1,218,231	211,694	1815	830,516	72,634
1799	1,200,492	231,226	1816	1,077,614	89,119
1800	1,694,327	338,108	1817	387,454	106,763
1801	1,768,162	919,353	1818	1,075,190	120,029
1802	1,633,283	266,816	1819	1,086,762	135,271
1803	2,079,608	133,606	1820	533,741	146,316
1804	1,944,873	111,327	1821	607,277	131,669
1805	861,501	116,131	1822	509,098	148,228
1806	1,064,263	108,342	1823	749,034	141,501
1807	1,018,721	136,460	1824	779,297	152,723

Year.	Bushels Corn.	Bbls. Corn Meal.	Year.	Bushels Corn.	Bbls. Corn Meal.
1825.....	869,644.....	187,225.....	1837.....	151,276.....	159,435.....
1826.....	505,381.....	158,652.....	1838.....	172,321.....	171,843.....
1827.....	978,664.....	131,041.....	1839.....	162,306.....	165,672.....
1828.....	70,492.....	174,639.....	1840.....	574,279.....	206,063.....
1829.....	897,656.....	173,775.....	1841.....	535,727.....	232,284.....
1830.....	444,109.....	145,301.....	1842.....	600,308.....	209,190.....
1831.....	571,312.....	207,604.....	1843.....	672,608.....	174,254.....
1832.....	451,230.....	146,710.....	1844.....	825,282.....	247,882.....
1833.....	437,174.....	146,678.....	1845.....	840,184.....	269,030.....
1834.....	303,449.....	149,609.....	1846.....	1,826,068.....	298,790.....
1835.....	755,781.....	166,782.....	1847.....	17,272,815.....	945,039.....
1836.....	124,791.....	140,917.....			

Art. IV.—INTERCOMMUNICATION BETWEEN THE ATLANTIC AND PACIFIC OCEANS.

The following letter we publish without comment. It is proper that either side be heard in all matters, and that all the facts of a case be elicited. The interests of truth are ever subserved in the conflict of opposing statements. The subject discussed, in any view of it, is worthy of the attention of the American people. It has risen in dignity and importance. We cherish no rival schemes. It belongs to the whole country to reach the Pacific ocean; and the best way to attain this end *we will advocate*. The paper we now present is an able one. The statistics have been collected and embodied with great care. We earnestly invite attention to the whole subject, on the part of those who would decide for themselves. All may comprehend it without difficulty.—EDITOR.

DEAR SIR—An article in your estimable Review for July, from Professor Forshey, of Louisiana, on the subject of a railroad to the Pacific, seems to call for some remarks from me, as it directly alludes to and compares my project with one for a more Southern route.

When I first gave my undivided attention to the subject of a communication across our continent, and long before my proposition of 1844 was made public, I examined the whole continent, as far as its topography was known, from Panama to the Arctic ocean.

First. It appeared that the more narrow points, the shortest distance across, would be the most desirable, therefore Panama and all the Isthmus of Mexico claimed my attention. The first object in such a work being to change the route for the commerce of Europe with Asia so as to benefit ourselves, on examination, I found it could not be done here: because, if a ship canal were constructed *anywhere* it could only be done by a tunnel through from ocean to ocean, the practicability of which is very doubtful, and under any circumstances at an enormous expenditure, probably doubling any, the highest estimate yet made. A railroad could not answer, because there is not sufficient water on either side, nor on the entire Gulf coast, to form suitable harbors for ports of depot; because the mountain torrents in the rainy season would be likely to sweep away the work or render it useless; because the climate is such that population could not be sustained either to build the work or to carry on the commerce, make the transshipments, &c., &c.; because the expenses of such commerce would be greatly increased beyond what they now are,

and because the time and distance would be increased, as, for instance, take the proposed canal at Nicaragua :

From London to Valparaiso, through the proposed canal to Realijo ..	5,478 miles.
Thence to Valparaiso	3,500 "
	<hr/>
	8,978 "
From London to Valparaiso around the Cape	9,400 "
	<hr/>
Difference in favor of canal, which would not change route.	422 "
From Sidney to England, via proposed canal.	14,848 "
" " " via Cape Horn	13,848 "
	<hr/>
Against canal	1,000 "
From Canton to England, via canal S. W. M.	15,558 "
" " " via Cape Good Hope	14,940 "
	<hr/>
Against canal.	618 "
From London to Singapore, via canal N. E. M.	16,578 "
" " " via Cape Good Hope.	14,350 "
	<hr/>
Against canal.	2,228 "

Comment is unnecessary.

This abandoned, I followed up the continent. I did not consider the difficulties of getting a right of way through Mexico as an impediment, because interest always governs; but I have not yet been able to find any place for a route on all the continent, above the Isthmus and below $42\frac{1}{2}^{\circ}$ north latitude, where a passage can be had short of an elevation of about 12,000 feet, and I did and do consider any route off from our territory an insurmountable objection. Any Southern route must be subject to almost or quite insurmountable difficulties, from immense soft bottom lands, impossibility of bridging streams, and the constant yearly flooding of the Rio Grande and all the streams to be crossed, which would destroy any railroad and its operation.

These are difficulties which must stare any engineer full in the face, and there is no way to overcome them. Then, as to climate, the same insurmountable difficulties as across the Isthmus. Can commerce be carried on through Louisiana and Texas, except in the winter months? and would Mazatlan, $23\frac{1}{2}^{\circ}$ north latitude, worse even than at 7° or 10° in climate, from its position and country,* answer for the great emporium for *all* the commerce of Europe with all Asia? And can our animal and vegetable products be carried in safety through such a climate? Could we by such a route expect to avail ourselves of the vast markets of Japan, of China and of all Asia, which would be opened to us by a proper route across our continent? My own experience in such climates tells me we could not; and the distance from Europe could not be shortened by this route sufficiently to force a change, as will be seen—

From London to Charleston, 80° long., each 47 miles.	3,760 miles.
From Charleston to Mazatlan. Mr. Forshey's route.	2,170 "
From Mazatlan to Canton, 140° long., which on this parallel of the globe with currents and trades, may be estimated at 60 miles each, ..	8,400 "
	<hr/>
	14,330 "

* Its coast is subject to periodical gales, so severe as to render it extremely dangerous, if not impossible, of access at certain times.

Subject, certainly, to not less than 1 cent per ton weight per mile, on 2,170 miles, is \$21 70 or \$10 85 per ton measurement of teas, or the like merchandise; subject to transshipment at Charleston, transshipment or ferriage across the Mississippi, the Rio Grande, and other streams which cannot be bridged, and we see we gain in distance from Canton to London only 610 miles. Comment is unnecessary here.

I have examined this subject and devoted myself to this object, not for a Northern or Southern route, not for New Orleans or New York, Boston or Charleston; not for any place or city, but for the whole United States—for *all*, from the Pacific to the Atlantic, and from the Gulf to Maine. My object has been to find a route, the means for accomplishing which should be produced by itself—a route which, by shortening distance and time, lessening expense, affording facilities for commerce and intercourse, would give us the entire control of the commerce of Europe with all Asia, and increase our own far beyond the power of the imagination to estimate, and at the same time spread and distribute its vast, its incalculable benefits, over every section and interest of our widespread republic; and I think an impartial examination of the subject, in all its bearings, will plainly show that I have not failed. I base all my calculations upon the only possible means, the wilderness land, by which the work can be accomplished at all on any route; therefore, the route must be where the road can bring into life and action this *only* means; and the route which circumstances forced me to select is the only route which will do so.

From Lake Michigan to the pass in the Rocky mountains, as will be seen by the accompanying map, No. 1, is unquestionably the best and most feasible route for a railroad on the face of the globe—without rock, mountain, or even hill; no wide, soft bottom lands, no streams which cannot be bridged, and no flooding of the streams to destroy the road or impede its operation; one-half this distance the route is parallel with and between rivers, and does not require a single bridge—the whole distance on a regular gradual ascent, a great part of which not over 6 feet per mile, and no one mile over 25 feet. From the pass to the ocean, from the scale of elevations taken daily by Col. Fremont, it will be seen that the route is not a difficult or expensive one. It would seem that the God of nature had fixed this as the route. As the Red sea in olden times, so here the mountains are opened for our passage, that we may carry light, life and liberty to the darkness and heathenism of all Asia; and the same God who commanded the Israel of old has pointed out to us, the young Israel, the way, given us the means to accomplish his great purpose, and shown that we are his instruments to encircle the globe with the spirit of life and truth. The application of man's labor with a rich reward, will bring forth and accomplish all.

It will be seen by the accompanying map, No. 2, that on this line, this belt of the globe, are nearly all the population and commerce of the world—the most genial climes and fertile soils—producing the great amount of breadstuffs and meat, the sustenance of both man and commerce; and by examination of the map it will be seen that this is the most central, most convenient and accessible to all the Atlantic and gulf cities; the southern cities having advantage in distance—

Philadelphia 100 miles nearer than New York ; Baltimore 100 miles nearer than Philadelphia ; Richmond nearer than either ; Charleston nearer than New York, and New Orleans in a line by which a railroad can be built not 800 miles from it. And we now see all the States, from the gulf to Maine, pushing with all possible force *all* their roads to this very point, in order each to share in the rich commerce of that immense population which is to occupy those incomparably rich and overwhelmingly productive States north and west of the Ohio river.

South Carolina, Georgia, and Tennessee are straining every nerve to approach the mouth of the Ohio. Virginia yet slumbers, but she will awaken to the rich prize within her reach, and push on to Cincinnati. Baltimore, impatient for the race, will not be checked even by the mountain barriers, but leaps on to Wheeling, the first to take the purse. Nor will Philadelphia or New York be inactive ; on, onward, is the cry of all for the rich prize beyond the mountains. And if such be the inducement now, what may we expect when the great highway of nations is before them all, from which each must receive its proper share of all the commerce—all the wealth of the world ? At the same time there will be brought into life and use an immense country—the richest and best on the globe—embraced within the routes from each Atlantic city, and from ocean to ocean, as will be seen by the annexed map, No. 2. Our vast republic will be brought to the grand centre in two and a half days, and the entire world to the same centre in twenty-five days ; making the distance from any Atlantic city to Oregon or California not over 3,000 miles—at 30 miles per hour, requiring less than five days ; thence to Japan, but 4,000 miles, by steam, but fourteen days ; to Shang-hai in China, at the mouth of the great Yang-tse-Keang, which at a short distance from its mouth crosses the great canal to Peking, and where all the commerce of this vast empire of 500,000,000 souls now centres, and where all its foreign commerce must centre, when this route is opened would be from New York but 8,400 miles, requiring 24 days ; to Australia, 9,000 miles, requiring 26½ days ; to Singapore, where all the commerce of Europe with India would centre, with this route open, is but 10,660 miles, requiring but 29½ days ; and all this commerce and intercourse by this route might be carried on by steam, because there is an abundance of coal at Vancouver's Island, at Japan, China as low as Formosa, and the high latitudes of Australia, and the distances from point to point are within the capacity of a vessel to carry fuel, which could not be done from Mazatlan or the Isthmus. The commerce and intercourse from this route with all Asia, and even to Africa, may be carried on along the coast, never out of sight of land. What a prospect, what a glorious prospect ! Very soon the various lines of steamers from the Oregon to Japan, to China, to all the islands, and to all Asia, would far outnumber those of any of the Atlantic cities of the present day.

In Mr. Forshey's 1st comparison, he says : " Connection between the Pacific and Atlantic at any of the points named, Memphis or South, will answer all the purposes for the entire valley, as the navigation to and from these points is never intercepted." In this I cannot agree with him ; the Ohio certainly drains a very im-

portant part of that valley. The Herald of the 3d inst. says, navigation of the Ohio river was,

Places.	Time.	State of Water.
Louisville.....	August 29	4 feet 3 inches falling.
Wheeling.....	September 1.....	3 " 6 " "
Pittsburgh	" 1.....	3 " " "
Cincinnati	August 25	4 " " "

and we believe it is well known that the falling continues through the autumn, with no expectation of any material improvement till February; that the water is often much lower than at present—it has been represented to me as low as 15 inches. Now we all know that at the present stage navigation is rendered difficult and expensive, and not equal to the wants of the country. Surely the Mississippi, from the Ohio to St. Louis, even, cannot be considered equal to answer all the purposes wanted; and as we ascend either the Mississippi or Missouri the difficulties increase, so that for the greater part of the year these streams may be considered useless. These are facts known to all who are acquainted with the commerce and intercourse of that great valley, and that the streams generally are now used as a matter of prime necessity, but so soon as the means can be obtained, they will be abandoned for railroads.

Mr. Forshey in his 2d comparison says: "That from the Mississippi, where he proposes his terminus, to Mazatlan, is not more than 1,500 miles; whereas Mr. Whitney's route is 900 miles greater." Now let us see if this be so: first we should ascertain where we set out from to get to Mr. Forshey's starting point on the Mississippi, and from thence where to go.

First I will correct some errors which have been published to the world, which appear in Mr. Breese's report, and have originated from my having taken the various estimates of different travelers without calculation or approach to certainty. In Mr. Breese's report the distance from the lake to the ocean is estimated at 2,630 miles, and from the lake to the Atlantic estimated at 1,000 miles; while we find the city of New York in the meridian of 74° west from Greenwich, and the mouth of the Columbia 124° , giving 50° of longitude from point to point, which on this parallel do not measure over 47 miles to the degree, making from ocean to ocean only 2,350 miles. From the measurement and calculations of Mr. Darby, so well known and justly celebrated for his calculations and statistics, it appears that on the curve of 30° north latitude, starting near St. Augustine, over New Orleans, Louisiana and Texas, over Sonora and to the Pacific, at or near Cape Gonzalo, is a range of 35° of longitude, which in that latitude, he says, equals nearly 2,100 statute miles; on the curve of 35° north latitude commencing near Ocracoke inlet, south of Cape Hatteras, through North and South Carolina, through Georgia, Alabama and Mississippi, to the river about 10 miles south of Memphis, thence about 100 miles below Santa Fé, and over the Spine of the Rocky mountains to the Pacific, near Cape Guadalupe, over a range of 46° of longitude, which in that latitude is equal to 2,542 statute miles; on the curve of 40° north latitude, commencing at Tom's river, Monmouth county, New Jersey, passing near Philadelphia, Wheeling, Virginia, Columbus, Ohio, through Indiana, northern part of Mis-

souri, then over the chain of the Rocky mountains to the Pacific, near Cape Mendocino, through 51° of longitude, equal in that latitude to nearly 2,700 statute miles. Again, on the curve of 45° north latitude, near the mouth of the River St. Mary, Nova Scotia, through Maine, New Hampshire, Upper Canada, Michigan, Iowa, and on over the Rocky mountains to the Pacific, south of the Columbia river, a range of 63° of longitude, which in that latitude is equal to a little over 3,000 statute miles.

I will now show the distances from the different Atlantic cities to Prairie du Chien, where the Pacific road would probably cross the Mississippi, and where all would join it.

First, from New York to Lake Erie, $78\frac{1}{2}^{\circ}$ W. long., as per railroad report..... 483 miles.
Thence to Prairie du Chien, W. long. $90\frac{1}{2}^{\circ}$, is 12° long.; but add 2° for detour, and it is 14° long. 658 "

1,141 "

And Boston would be 200 miles more, and Philadelphia 100 miles less distant; and Baltimore, as per railroad report, to Wheeling..... 384 miles.
Thence to Prairie du Chien on nearly a direct line, but allow for detour, &c., say..... 564 "

948 "

From Charleston to Chattanooga..... 430 "
Thence to Natchez, Mr. J. E. Thompson's survey..... 152 "
Thence to the Ohio, 100; but add 15 for detour..... 115 "
Thence to Prairie du Chien on a line..... 370
Add for detour, &c..... 30—400 "

1,097 "

From New Orleans on a line, 13° latitude, at 60 miles, is..... 780 "
But add for detour..... 50 "

830 "

Now, from Prairie du Chien, $90\frac{1}{2}^{\circ}$ W. long., to the pass in the Rocky mountains, $109\frac{1}{2}^{\circ}$ W. long., is 19° long., each 47 miles.... 890
Here a road may be constructed in a straight line, but allow for detour..... 50—940 "
From the pass to the Pacific, long. 124° W., is $14\frac{1}{2}^{\circ}$, each 47 mil. 682
Allow for detour, &c..... 200—882 "

From Prairie du Chien to the ocean..... 1,822 "

Thus, then, it appears that by the southern route it would be

From Charleston to Vicksburg..... 771 "
Thence to Mazatlan..... 1,490 "

From Charleston to Mazatlan..... 2,261 "

Thence to China, 140° long., is..... 8,400 "

From Charleston to China, southern route..... 10,661 "

And by the northern route, as before stated,

From Charleston to Prairie du Chien..... 1,097
Thence to Oregon..... 1,822

From Charleston to the Pacific..... 2,919

Thence to China, $110\frac{1}{2}^{\circ}$ long., on this parallel equal to..... 5,400

From Charleston to China, northern route..... 8,319 "

Difference in favor of northern route..... 2,342 "

And the following table will show the distances from all the principal Atlantic cities and New Orleans to China by both routes :

A Table, exhibiting the Distances from all the principal Atlantic Cities (with New Orleans) to Charleston, to Vicksburg, to Mazatlan on the Pacific, and to China, for the southern route; and to Prairie du Chien (near where the Pacific road would cross the Mississippi), to Oregon, to the Pacific, and to China—with amount of differences both to the Pacific and to China.

	Southern Route.				Northern Route.			Dif. to Pac		Difference to China, in favor of N. route.
	To Charleston.	To Vicksburg.	To Mazatlan.	To China.	To Prairie du Chien.	To Oregon, Pacific.	To China.	In favor of S. route.	In favor of N. route.	
From Charleston....	....	771	2 261	10,661	1,097	2,912	8,319	658	..	2,342
" Richmond....	427	1,198	2 688	11,085	950	2 779	8,172	84	..	2 917
" Washington....	554	1,325	2 815	11 215	988	2 810	8,210	..	..	5 3,005
" Baltimore....	594	1,365	2 855	11,255	948	2,770	8,170	..	..	85 3,085
" Philadelphia....	709	1,480	2 970	11,770	1,041	2 863	8 263	..	..	107 3,507
" New York....	796	1,567	3 057	11,457	1,141	2 963	8,363	..	..	94 3 094
" Boston.....	996	1,767	3 257	11 657	1 341	3 163	8,563	..	..	94 3 094
" New Orleans..	....	415	1,905	10,305	830	2,652	8,052	747	..	2,257

And as the principal interior cities and States have a very important interest in the matter, let us show them exactly where they will stand; in order to do which, we will continue the table of comparison. And as Mr. Forshey says "they are suitable to all purposes," I will in most cases take the river distances for the southern; but as the building of the northern route will open railroad communication to almost all the places named, the railroad distance will be taken in most cases for that route.

From Louisville....	....	1,001	2 491	10 891	430	2,252	7,652	....	239	3,239
" Cincinnati....	....	1,132	2,622	11,022	450	2,272	7,672	....	350	3,350
" Wheeling....	....	1,496	2,986	11,386	560	2,382	7,782	....	604	3,604
" Pittsburgh....	....	1,588	3,078	11,478	610	2,432	7,832	....	646	3,646
" Cleveland, via Pittsburgh....	....	1,732	3,223	11,622	517	2,339	7,739	....	883	3,883
" Buffalo, via N. York.....	....	1,863	3 353	11,755	803	2,625	8,025	....	728	3,730
" Detroit.....	....	1,425	2,915	11,315	486	2,308	7,708	....	605	3,607
" St. Louis.....	....	803	2,293	10,693	300	2,122	7,522	....	171	3,171
" Alton.....	....	826	2,316	10,716	275	2 097	7,497	....	219	3,209
" Galena.....	....	1,208	2 698	11,098	60	1,882	7,282	....	816	3,816
" Chicago.....	....	1,070	2,560	10 960	210	2 032	7,432	....	528	3,528
" Prai. du Chien....	....	1,279	2,761	11,161	....	1,822	7,222	....	939	3,993

Mr. Forshey says that at Vicksburg, or near it, would be the most convenient place to concentrate all the commerce for the Pacific, much more so than where it is proposed for the northern route to cross the Mississippi. By taking the distances as in the above table for the Atlantic cities, *via* Charleston to Vicksburg, and for the cities direct to Prairie du Chien, as proposed by railroads, the difference will be found largely in favor of the northern route; and for the interior cities, towns and States, still greater: for instance, take Cincinnati, and we find a difference in favor of the northern route of 682 miles; take Pittsburgh, the difference is 978 miles; Cleveland, 1,225

miles; Buffalo, 1,060 miles; Detroit, 939 miles; Chicago, 860 miles; Galena, 1,140 miles; St. Louis, 503 miles.

Having completed the comparisons of distances, I will now take up the 3d comparison, "that the construction per mile will be much greater, because of mountain barriers," &c. I think these objections must have been made without a proper examination of the facts. I have before described my route to the pass in the mountains as more feasible than any other route on the face of the globe; and from the pass to the ocean is more feasible than the last 420 miles of Mr. Forshey's, or even any of the principal part of the entire route, else I am altogether misinformed. How Mr. Forshey is to get over the many marshes, soft bottom lands, hills, mountains, and ravines, which have been described to me, at a cost so low, when we know that the superstructure alone, with a rail of 64 to 75 lbs. to the yard costs \$10,000 per mile, is beyond my comprehension, and we know that none but the very best road will answer here.

I have not yet learned that we can get to the ocean short of an ascent of about 12,000 feet. But I hope Mr. Forshey is correct, as the time may come sooner than we imagine, when that country will become settled with a different people from the present, and their wants will then build the road, if practicable, but not till then; and now for the commerce of Europe with Asia. His fourth objection or comparison, "that after its construction, 25 years hence, during a considerable portion of the year it would not be available; severe winters and deep snows would render it impracticable for two or three months of each year, whereas the southern route would be always practicable," &c. I do not suppose Mr. Forshey wishes us to understand him to say there will be more snows and severer winters 25 years hence; though it would appear so, else he has not examined this part of the subject. As we go west from the great lakes it is milder, and less snow on the mountains. In Wisconsin, the snow seldom falls over a foot deep all winter, and this dry, not thaw and freeze. As we go into and through the mountains, the elevation, of course, increases the cold. The snow falls about Christmas, and remains on till May; its falls not frequent, and dry; no rains to thaw it.

Mr. Fitzpatrick, whose experience for years renders him the best authority, says that "at Fort Laramie very little snow rarely lays on the ground; has never seen a depth of snow more than 15 inches, and that very rare; never remains more than one or two days; thence to the pass continues during the winter about three months, depth 15 to 18 inches; thence to Greene river a decrease in depth, but remains longer than the east side of the pass; from Greene river to Bear river, crossing a range, about the same as at the pass; thence falling on to Bear river, it is rare that snow is found at any time, but descending the river northerly to Soda Springs, snow is again found 1½ to 2 feet deep; then, as you come on to Fort Hall, no snows, and very little on to Lewis Fork, to an immense plain; from this plain we get into a branch of Salmon river, without crossing a divide, and no more snow of consequence to the blue range, when snow is again found 2 feet deep; then there is no snow or winter to the ocean.

R. Campbell, Esq., a highly respectable and very intelligent merchant of St. Louis, spent three winters in succession, and a part of the fourth in the mountains from the pass to Fort Hall, and on to the head of Salmon river. He says that one winter *only* the snow fell 3 feet deep; fall commences 1 to 4th November (does not vary in time); very little, and melts off. At Christmas, the heavy fall commences (considers its regularity as to time remarkable); the falls are not frequent, and are dry, remain till April; some winters but very little, so that they could travel over most of the country. They found buffalo all winter living on the grass under the snow, which they root up. Mr. Campbell's animals were sustained in same manner, and by same means. He says that there are three routes from the pass to Fort Hall, all good.

From these statements from the most respectable source, and from many others, it appears that we have nothing to fear from snows in the winter, and that the route would not be impeded at all. The snows and winters are not so severe as in New York and New England, where delays are scarcely noticed, and much less than in a milder climate. I have witnessed more delays and difficulties between Baltimore and Washington, and Richmond, than in any of the northern States, because where the winter is severe, the snow falls dry and can be removed with machinery, when the rail remains free until another, which is not so frequent as in milder climates, where frequent sleet and rain, freeze and thaw, cover the rail with ice, much more difficult to remove than the deepest snow.

On the Baltimore and Ohio road, from Cumberland to Frostburgh, on a grade of 135 feet to the mile, a locomotive, cars and all, passed up through drifts of snow eight and ten feet deep without difficulty, leaving the rails clear.

Having the most satisfactory accounts assuring us there is in the mountains but little rain, little and unfrequent snows, and the snow very dry, easily removed by machinery, so that we need not expect interruption at all, I take the 5th objection, that "the northern route must be liable to difficulties of passing through an uninhabitable region." If the country was now occupied, the land, *the only* means, could not be had to build the road, and the project must be abandoned, as, like Mr. Forshey's route, no one would subscribe to the stock. In the parts which are represented sterile, the road will create such facilities as would most probably render nearly all suited to man's use in some way; and the business of the road itself would cause settlement throughout its line.

Mr. Forshey says: "This will be borne in mind, however, that all the expenses of transportation to the Mississippi Valley on his (Mr. Whitney's) route, from its greater length, will be 30 per cent. greater than on the southern route, and the cost of transportation from ocean to ocean full 40 per cent. greater." Now let us look into this part of the subject, and I will make Charleston our terminus on the Atlantic for both routes.

First: Mr. Forshey's road can be built only by an appropriation of capital, must earn dividends or the investment is a bad one, and tolls exacted to meet its wants.

A railroad with business to its *nearly* full capacity, can transport

merchandise and earn fair dividends at one cent per ton per mile, therefore I will assume one cent per ton per mile for Mr. Forshey's route—which by his estimate is from Charleston to Mazatlan 2,261 miles—at one cent is \$22 61, thence to China at a comparative freight with other distances, say per ton weight \$20 50; amounting to \$43 11 for a ton weight of teas from China to Charleston, via southern route, or equal to two tons measurement of Young Hyson teas, heavier than any other description, and compares well in weight and bulk with flour—say the third class article in weight and bulk.

It will be seen by the foregoing table and statements, that from Charleston to Prairie du Chien is 1,097 miles, which road would be subject to earn dividends, and, at one cent per ton weight per mile, would be

\$10 97

thence to the Pacific (Oregon) is 1,822 miles; but, as the road would be built from the public lands, it would not be subject to tolls for dividends, and one-half a cent per ton weight per mile would be equal to repairs and operations—say from Charleston to Oregon

\$9 11

\$20 08

or \$2.53 less than the southern route; thence to China, 5,400 miles *only* on this route, at a comparative freight, say

\$14 00

from Charleston to China, via the northern route, - - \$34 08

or \$9 03 less than by the southern route, making Charleston the terminus for both. The following table will show the exact difference between the two routes for all the cities north of Charleston; and also those in the interior. I have assumed that all the routes from Boston to Charleston, to the State of Ohio, or to the Ohio river, will be completed, and run on in one, or separately, through Ohio, Indiana, and Illinois, to join this northern route where it would cross the Mississippi river; that the commencement of this northern route would greatly accelerate their progress and completion, I think, cannot be doubted; and those different routes would accommodate directly all the interior places named, as well as many more; it is therefore that I have estimated freights on all these routes at one cent per ton weight per mile; and I have done the same for all the routes from the Atlantic cities to Charleston, which, I think, is below what the actual cost will be, as the amount of freight would not be large; whereas the routes leading directly to the Atlantic, through the rich productive States of Kentucky, Western Virginia, Ohio, Indiana, Illinois, &c., would be, even without the Pacific road, so fully employed, as to allow the reduction of tolls to the lowest number. While for the southern route I have assumed, that under no possible circumstances, should the road ever be built, can it draw business to it sufficient to induce the building of railroads from the North to join it; and as the rivers must be the only channels of communication, I have therefore taken the lowest river price, at the season when the streams are fully navigable, as the prices have ranged for four years past, not including this year of high prices; I have, too, taken the lowest article of merchandise, flour; for towns or cities not directly on navigable streams, I have taken the shortest land carriage, at two cents per ton per mile; and, as it is well known that the Ohio, from Lou-

isville down, is obstructed by low water, from middle of July to 1st December, and from Cincinnati by low water and ice for a greater length of time; and that the Mississippi, from St. Louis to its junction with the Ohio, is obstructed by ice and low water for about seven months of the year; it will be perceived the estimate and comparison is more than fair for the southern route. I have not even considered the great dangers, and losses of life and property in navigating those streams. Mr. Calhoun's able report estimates for 1841-2 the annual aggregate loss at 107½ boats, valued at \$1,820,200. An addition should have been made to my estimates for insurance; for instance, a ton weight of teas, average cost \$80 00, from China to St. Louis, via southern route, would be subject to \$2 farther charge for insurance. Nor has anything been estimated for the many transshipments on the southern, which would be avoided on the northern; because on the northern route, a loaded car would go from any starting point, from any Atlantic or interior city, direct to its destination, or to the ocean without change. In my estimates it has been my endeavor to give all possible advantage to the southern route, as the table will show.

The following table exhibits the cost of transit for one ton weight of merchandise from the Atlantic cities to Charleston, at one cent per ton per mile; thence to Vicksburg 771 miles or \$7 71, at same rate; thence to Mazatlan on the Pacific, 1,490 miles, or \$14 90; and thence to China, 8,400 miles, is \$20 50 more; and from the interior cities to Vicksburg, estimated at the lowest river prices, and thence to Mazatlan and China, as above, for the southern route; and for the northern route from the same places to Prairie du Chien, at one cent per ton per mile; thence to Oregon on the Pacific, 1,822 miles, at ½ cent per ton per mile, is \$9 11; and thence to China 5,400 miles, or \$14 per ton. Showing the totals at Charleston, Vicksburg, Mazatlan, and China, for the southern and for the northern route; the totals at Prairie du Chien, Oregon, and China, with difference in favor of northern route. Prairie du Chien over Vicksburg, Oregon over Mazatlan on the Pacific, and northern over southern route to China.

From	SOUTHERN ROUTE.				NORTHERN ROUTE.			Differ. between Prairie du Chien and Vicksburg favor of former.	Difference to Ocean favor of North'n. Route.	Difference to China favor of North'n Route.
	Total to Charleston. miles.	Total to Vicksburg. miles.	Total to Mazatlan. miles.	Total to China.	Total to Prairie du Chien.	Total to Oregon.	Total to China.			
Richmond to	\$4 27	\$11 98	\$26 88	\$47 38	\$ 9 50	\$18 61	\$32 61	\$ 2 48	\$ 8 27	\$14 77
Washington	5 54	13 25	28 15	48 65	9 88	18 99	32 99	3 37	9 18	15 66
Baltimore	5 94	13 65	28 55	49 05	9 48	18 59	32 59	4 17	9 96	16 46
Philadelphia	7 09	14 80	29 70	50 20	10 41	19 52	33 52	4 40	10 18	16 68
New York	7 96	15 67	30 57	51 07	11 41	20 52	34 52	4 26	10 05	16 55
Boston	9 96	17 67	32 57	53 07	13 41	22 52	36 52	4 26	10 05	17 45
New Orleans .....	.....	3 00	17 90	38 40	8 30	17 41	31 41	.....	49	6 99
Louisville .....	.....	5 00	19 90	40 40	4 30	13 41	27 41	* 70	6 49	12 99
Cincinnati .....	.....	6 00	20 90	41 40	4 50	13 61	27 61	1 50	7 29	13 79
Wheeling .....	.....	8 00	22 90	43 40	5 60	14 71	28 71	2 40	8 19	14 69
Pittsburgh .....	.....	8 00	22 90	43 40	6 10	15 21	29 21	1 90	7 69	14 19
Cleveland .....	.....	12 00	26 90	47 40	5 17	14 28	28 28	6 53	12 62	19 12
Buffalo .....	.....	18 63	33 53	54 05	8 03	17 14	31 14	10 60	16 39	22 89
Detroit .....	.....	12 00	26 90	47 40	4 86	13 97	27 97	7 14	12 93	19 43
St. Louis .....	.....	7 00	21 90	42 40	3 00	12 11	26 11	4 00	9 79	16 29
Alton .....	.....	8 00	22 90	43 40	2 75	11 86	25 86	5 25	11 04	17 54
Galena .....	.....	14 50	29 40	49 90	60	9 71	23 71	13 90	19 69	25 99
Chicago .....	.....	11 75	26 65	47 15	9 10	11 21	25 21	9 65	15 44	21 94
Prairie du Chien .....	.....	14 50	29 40	49 90	.....	9 11	23 11	14 50	20 29	26 29

A comparison of time has not yet been had, which would be greatly in favor of the northern route. A mild or southern clime enervates the system, so that, the world over, we do not expect the same habits of laborious industry or the same action, as where necessity forces all man's energies and efforts. Therefore we could not expect the same speed or regularity of operation, and from Mazatlan to China would require from twenty to thirty days longer for a sail vessel, than from Oregon to China; in fact the better route for a vessel from Mazatlan bound to China, would be via Oregon; and for steamers the only route, the only means of supply for fuel.

As regards local or southern interest, which I think manifests itself in Mr. Forshey's remarks, it should not be permitted to enter into this subject **AT ALL**; it is purely a national question, in which all and every part of our wide-spread country is to share equally. The means proposed for its accomplishment are national, and all have a claim to an equal share in the great results promised, which cannot be attained on any other than the route proposed. But I feel myself warranted in saying that the southern interest has not been considered or understood in Mr. Forshey's remarks; believing I have already shown that taking Charleston as the terminus on the Atlantic for both, and making Charleston the only point of interest in the route, that the advantage would be in favor of the northern route of 30 days in time, in distance to China of 2,342 miles, of \$2 53 per ton weight for transit to the Pacific, and \$9 03 per ton weight gain for transit to China.

And is this all that Charleston would gain by the northern over the southern route? With this road commenced, South Carolina, Georgia, Alabama, Tennessee and Kentucky, would push their united efforts to complete a road on to Illinois, where an appropriation of government lands (on the line now unoccupied and without means of communication with markets) nearly worthless, and about being reduced by the graduation bill to, say, 25 cents per acre, would complete a road to join this northern route at the point where it crosses the Mississippi, at the same time bringing into use and value the immense amount of government lands through the entire centre of that great State. What would then be the position of Charleston? Why, in addition to her full share of the commerce of all the world over this great highway of nations, she would have a flood of all the vast products of the rich States of Missouri, Illinois, Indiana, Kentucky, Tennessee, and others, pouring in a torrent of commerce, of prosperity and wealth, from that immense valley which she reaches at the very centre (the junction of the two great rivers, distant less than 700 miles), a rich basin capable of sustaining four-fold the population of the same space on any other part of the globe. It would fill to overflowing her wharves and warehouses in a manner scarcely dreamed of now. Can there be any mistake in this? None; because all that is wanted for its fullest realization is the cheap means of transit which this route alone can afford, and the certainty of realization would bring forth ample means for its accomplishment.

Look at the fact, that from Prairie du Chien to Charleston, ten barrels of flour may be transported for \$10 97, or one dollar and ten cents per barrel, requiring but about three days' time, and in the same

comparative proportion for a shorter distance; and who can doubt the result? Surely *all* must see the true interests of not only Charleston but all the South!

The tables which I have exhibited will show the true position of all the northern cities and States. Comment is unnecessary. If Charleston gains so much by the northern route, the northern States and cities would be still the greater comparative losers by the southern one. And for the great States in the Mississippi valley, which are by this route to be made not only the centre of this vast continent, but the centre of the entire globe, the great highway and thoroughfare for all the world, which is to be controlled and sustained by it—if Charleston gains so much, as before shown, what would not they lose by the southern route? Their position, with the northern, would secure to them the great highway of nations, and all the necessary avenues or channels from the different Atlantic States to it, free from cost for construction. Thus, I think, it must appear as clear as light, that the route which by circumstances I have been forced to select, is the only one embracing *all* the interests of *all* the country; and that, considering everything, there is no other route where we can hope to accomplish this great work; no other where the only means—the wilderness lands—can be made by the labor of man alone to accomplish everything that is desired—richly rewarding the labor that has produced it, and extending comfort and happiness to millions now in destitution and want; no other where the streams can be bridged, and one uninterrupted, unimpeded communication made from ocean to ocean; no other where timber can be had for the road and taken on it for the settlement of more than 1,200 miles of country existing without it; and, finally, no other which does not require one dollar from the treasury, from individuals, or the people, but will add millions. Even the amount created by itself out of the waste lands, would be distributed among the people for labor and materials. Why, then, object, or bring opposing routes which can in no way have opposing interests?

Mr. Forshey proposes individual means for his route; and, certainly, no one can object to that; but we can doubt the possibility of finding subscriptions. For the northern, however, we have seen, no means are required but the waste lands, the greater part of which are without value, and can never be made available without the road. Thus, without pecuniary outlay, may we control and command the world, commercially, morally, and politically; add millions of wealth to our treasury and nation, quadruple our population, and obtain the means which are to build Mr. Forshey's road, and all others which the wants of the people and country may demand.

Truly yours,

A. WHITNEY.

New York, Sept. 8, 1847.

J. D. B. DE BOW, Esq.

New Orleans.

Art. II.—THEORIES OF CREATION AND THE UNIVERSE.

NEBULÆ—FORMATION OF SUNS AND WORLDS—LAWS OF THE PLANETS—THE EARTH—LICHENS—MOSSES—ZOOPHYTES—MOLLUSCÆ—VEGETABLE NATURE—GEOLOGICAL STRATA—GRADATION OF ORGANIZED BEINGS—DISTINCT ORGANIZATIONS—FINAL CAUSES—MAN AND NATURE.

THE elder Herschel, to whom the world is so largely indebted, discovered specks or islands scattered irregularly through space, of a light, hazy appearance, which, when closely examined, appeared to consist of a self-luminous vapor. Many of these have been resolved into clusters of stars; others seemed to defy the power of the largest instruments, and remained until recently, wholly irresolvable. The middle star in the Sword of Orion, is the most interesting of these irresolvable bodies; and until March, 1846, it obstinately defied all efforts to resolve it. Another phenomenon was discovered by the same great pioneer, of a like character, but differing from the former in the important fact of a distinct nucleus in the central part, with an increasing light from the borders to the centre. These were called stars with burrs. The nebulæ were considered the elementary or rude material, which the second phenomena exhibit in a more advanced condition; as, the star in Andromeda; and these again, as only one step in advance toward the perfect star. These phenomena gave birth to the Nebular Hypothesis, which strengthened La Place's celebrated theory of the creation of the solar system. It was assumed that the stars and planets were originally the same as these self-luminous clouds; and that they were advanced as the star in Andromeda, and from that structure through the various stages of world-making, until prepared for the habitation of animate nature; and left to perform their parts with the innumerable sisterhood; and that these nebulæ themselves were but detached parts of a universal "fire mist," which at the *beginning* pervaded all space.

La Place adopted the nebular hypothesis—as it favored the cosmogony which he had previously advocated; the evidences of which he found in the general appearances of harmony that prevailed throughout the mechanism of the whole system; and which could most satisfactorily be accounted for, by supposing the planets to have been thrown off in their orbits by the sun, while contracting its dimensions under the influence of radiation. This hypothesis enabled him to extend his speculations into something like a theory, founded upon the supposed existence of a nebulosity of matter extending beyond the orbit of the most distant planet, which by the loss of heat through radiation, contracted its dimensions, and was thrown into a rotary motion by the force of the outward particles rushing to the centre. This gave birth to centrifugal force, which depends upon rotary motion for its existence. This centrifugal force continued to increase, until it threw off the external particles into a separate zone or ring; as, the rings around Saturn. These were broken up by some imaginary influence, and the particles again drawn together by the attractive power of a central point, which becomes the nucleus of the new-born planet, whose motion results

from the same influences which started its primary. This planet, in its turn, throws off other rings, which by a similar process are transformed into revolving bodies, in the character of satellites.

This is a brief statement of the cosmogony adopted by La Place, or more properly, his speculations, in which the nebular hypothesis performed so important a part. Our author has adopted the same hypothesis; making it the foundation of his extravagant speculations concerning the creation of animate and inanimate matter; differing from those of La Place more in the boldness with which they are stated, than in fact.

The "Vestiges"* assumes the fact of the existence of nebula; and that originally it filled the space that its detached parts now occupy. "This leads us," the author says, "at once to the conclusion, that the whole of our firmament was at one time a diffused mass of nebulous matter, extending through the space it still occupies. So also, of course, must have been the other astral systems. Indeed we must presume the whole to have been originally in one connected mass, the astral systems being only the first division into parts and solar systems the second." Then, allowing himself the benefit of a supposition, as to the peculiarity in its constitution enabling it to form its own nucleus, he discovers the influence producing the aggregation of the molecules, in the attracting power of the nucleus, and accounts for its rotary motion, by that "well-known law in physics; that when fluid matter collects toward or meets in a centre, it establishes a rotary motion:" as, in the whirlpool and whirlwind. Rotary motion once established, centrifugal force naturally results, from "the tendency to fling off its outer portions." And this, when in full operation, throws off the external molecules in the form of a ring around the primary—this ring is broken by some imaginary influence; and the particles gathering round a nucleus in the form of a spheroid, constitute the most distant and first-born of our solar system.

The existence of the material (nebula), and of the laws destined to mould it into worlds, being established, the foundation of the hypothesis is fairly laid. Our attention is now turned to the appearances of the planets and satellites—their distances, densities and motions—as evidences confirming the theory of their creation. The great nebulous mass has commenced its motion, and is fully under the various influences which are to change its character, and divide it into a family of inhabitable worlds. But this division is to be effected by influences which must necessarily act uniformly and regularly. This supposed mass, by some "peculiarity in its constitution," forms a nucleus, and its molecules, solidifying and contracting under the influence of radiation, produce rotary motion. "At length when the central mass reaches a *certain* point or stage (determined by some unknown law) in its advance toward solidification, a separation takes place (by virtue of the centrifugal force), and the crust becomes a detached ring."

The first planet thrown off must necessarily be the largest and least compact, as well as the most remote member of the system. As the mass continues to contract and solidify, the second planet must

* The Vestiges of Creation with a Sequel—last edition.

be smaller and its constituent parts closer than the senior member, in proportion to the distance; and, as they are thrown off by the same laws, their motions should correspond. These positions are taken in the "Vestiges." "It is not less remarkable," our author says, "that the motion of the sun on its axis, those of the planets around the sun, and of the satellites around their primaries, and the motions of all on their axes, are in one direction—namely, from west to east." * * * "Some of the other relations of the bodies are not less remarkable. The primary planets show a progressive increase of bulk and diminution of density from the one nearest to the sun to the one which is most distant." * * * Their relative distances from the sun also show a surprising proof of their unity.

From the relation and unity of the planets, and the appearances of existing phenomena, the primordial condition of matter is inferred. We may therefore inquire, whether the relation and unity spoken of furnish the "Vestiges" the support to its theory, which the author forces from them. The nearest planet is 36,000,000 miles from the sun, and the second 70,000,000 miles, or nearly twice the distance of its youngest sister; while the earth, the next in order, is but 95,000,000 miles—being less than one-third increase on the orbit of Venus; and Mars, the fourth, is 150,000,000 miles, or a little more than one-third increase on the orbit of the earth. Uranus is 1,800,000,000 miles from the sun, or nearly twice the distance of Saturn; and Le Verrier's planet twice the distance of Uranus. The space, without any large planet, between Mars and Jupiter, has been accounted for by the discovery of our small planets, revolving between them at nearly one mean distance from the sun. We discover, then, that the ratio of increase is not regular; nor can the irregularity be accounted for by the contraction and solidification of the central mass, as the ratio of increase is not in proportion to the squares of their distances. The distance from Mercury to Venus is greater than from Venus to the earth. Nor can the difference between the major and the minor planets be accounted for in this way.

The same author is still more unfortunate in attempting to find a progressive increase of bulk from the nearest to the most distant planet. Mercury, the nearest planet, is about 3,200 miles in diameter, and Uranus, the planet thought to be most distant when the "Vestiges" was published, is about 35,000 miles in diameter. There is not, however, a progressive increase of bulk from Mercury to Uranus. Jupiter, the fifth from the sun, is the largest, having a diameter of 88,000 miles. Saturn is also much larger than Uranus, being 80,000 miles in diameter; while the diameters of Venus and the earth are nearly equal, being twice as great as that of Mars, whose distance from the sun is more than one-third greater than that of the earth, and more than twice the distance of Venus. The measure of density adopted by our author, which differs but little from the density of some of the planets, as ascertained by exact calculation, would reduce Uranus down to an inconceivably attenuated mist, and Le Verrier's planet to "the shadow of a shade." But the density is not regular in its increase. Passing over the differences in the inclination of their axes to the plane of their orbits (which perhaps ought to have been equal, owing to the uniformity of the controlling influences

acting upon them), we will present the only exception to the uniformity of their movements from west to east, found in the motion of the satellites of Uranus, which move in a retrograde course—from east to west: contradicting the idea of regularity in this particular. This retrograde motion of the satellites of Uranus, our author attempts to explain by hinting at the possible "*bouleversement*" of the whole of that planet's system, which in our opinion weakens his whole argument, as it admits an exception to the operation of laws, the regularity and universality of which he is struggling to sustain.

However firmly established that "well-known law of physics," which produces rotary motion, may be, it is somewhat doubtful whether our author is entitled to claim its influence in this theory. Admitting that the contraction of the nebulous mass, by radiation of heat and the attractive power of the nucleus, might produce a rushing in of the outward particles, sufficient to give rotary motion to the body, if the force of the particles fell upon its centre so obliquely as not to neutralize the power of each other; yet we doubt the possibility of the existence of the condition upon which this motion depends. The motion of the planets is explained by the whirlpools or dimples found by "the musing poet" in fantastic eddies, where the current is forced out of its direction by some opposing power, which turns it back in a semi-circular course, bringing it in contact with the current above, and this, carrying it down again to the point of resistance, gives it a circular motion. We see this illustrated in the bends or curves of rivers, when the current rushes against the bank, and at the meeting of streams flowing together from oblique directions. But these phenomena are not fair illustrations of the motion of nebulous bodies. The first nebula must have been a globe, the dimensions of which, according to the theory, were contracted by radiation, and under the influence of this contraction, the atoms were drawn to the centre. Now, as the radiation acted equally upon all the agglomerating particles in the same circle, the momentum of each must have been the same; their forces, then, were neutralized by each other; therefore, their flowing together produced no cause for rotary motion. Whirlpools are caused by currents running to *different* points—the agglomerating particles are all drawn to a *single* nucleus. The different currents are unequal in force and velocity—the motion of the atoms is produced by the same influences, and their forces are necessarily equal. But suppose the external particles were thrown off by centrifugal force (resulting from rotary motion), in the form of a ring around the primary, and afterward broken up; we would ask our author to explain the process by which they are attracted to the particular nucleus. These fragments are scattered in an orbit too inconceivably vast for human computation, and around a globe (the primary) millions of times larger than the nucleus which is to attract the widely-scattered particles together. "It is a well-known law in physics," that there is a mutual attraction between all bodies in the proportion of their mass. "It is this that causes all the disturbances which render the celestial motions so complicated and their investigation so difficult." Now, by what means the attractive power of the great central mass was overcome by that of the mere point, is left wholly unexplained. We

can imagine the planets taking oblate forms under the reciprocal attraction of their component parts and centrifugal force—for this process is natural, and does not conflict with well-established laws—but we cannot imagine the influences which neutralize the attraction of the mass, and enable the insignificant point to control particles located on the opposite side of the primary.

But is it possible that the supposed nebula did occupy or fill the whole orbit of the most distant planet? The diameter of the sun is 888,000 miles—that of Jupiter, the largest planet, is only 88,000. It is ascertained, that if all the planets and satellites in the solar system were moulded into a single globe, that globe would still not exceed the five-hundredth part of the globe of the sun; in other words, the bulk of the sun is five hundred times greater than the aggregate bulk of all the rest of the bodies of the solar system. If the planets and satellites were brought to the density of the sun, by moulding them together, they would still bear no greater proportion to that body, as the density of the minor would be lost in equalizing that of the major planets. According to this calculation, we have a globe whose diameter is 888,000 miles, and other bodies, the aggregate bulk of which is but one five-hundredth part as large, of the density of water, to fill an orbit, the diameter of which is not much less than 8,000,000,000 miles. With these facts in view, "it has been asserted, that the matter of the solar system could not, in any conceivable gaseous form, fill the space comprehended by the orbit of Uranus. The orbit of Le Verrier was then unknown; its discovery increases the difficulty. "If this be the case," our author observes, "let it be allowed as a difficulty"—silently admitting the objection to be well founded, notwithstanding the importance of sustaining his position, in order to account for the location of the planets.

The history of astronomy, ever interesting, has been made more inviting by the successive speculations concerning the nebular hypothesis. For years the far-reaching vision of astronomers has been turned upon these appearances, and for an equal length of time the learned corps has been defeated and mortified by the uncertainty in which they were compelled to remain; while theories and speculations, as wild as the nebulae are distant and indistinct, have resulted from their supposed irresolvability, which have alternately disturbed the foundations of the Christian religion, and the science of astronomy itself—that glorious star-crowned superstructure, whose arches span the widest range of stellar matter. These irresolvable islands were found in the very borders of that vast field which the astonishing improvements of man have enabled him to bring within the compass of his vision, and were therefore the more difficult to examine. But as successive improvements were constantly enlarging the field of view, and rendering more distinct the remote territory already partially surveyed, it was hoped that these phenomena would soon be understood. That period has now arrived. Out of the dark cloud that settled on the bosom of philosophy, light and truth have been distilled, and science comes out more closely allied to the religion which sustains her faithful priesthood.

"The two Herschels," says the Vestiges, "have in succession

made some other most remarkable observations on the regions of space. They have found within the limits of our astral system, and generally in its outer fields, a great number of objects which, from their foggy appearance, are called nebulae; some of vast and irregular figure, as that in the Sword of Orion, which is visible to the naked eye; others of shape more defined; others again, in which small, bright nuclei appear, formed here and there over the surface. Between this last form and another class of objects, which appear as clusters of nuclei with nebulous matter around each nucleus, there is but a step in what appears a chain of related things. Then, again, our astral space shows what are called nebulous stars; namely, luminous, spherical objects, bright in the centre, and dull toward the extremities. These appear to be only an advanced condition of the class of objects above described. Finally, nebulous stars exist in every stage of concentration, down to that state in which we see only a common star with a slight *bur* around it. It may be presumed that all these are but stages in the process, just as if, seeing a child, a boy, a youth, a middle-aged, and an old man together, we might presume that the whole were only variations of one being. Are we to suppose that we have got a glimpse of the process through which a sun goes between its original condition, as a mass of diffused nebulous matter, and its full-formed state as a compact body?" And in reply, in the sequel to the "Vestiges," to the remarks of a learned reviewer, tending to show that the nebulous bodies had yielded successively to the resolving powers of enlarged telescopes, he says: "The nebulae are always understood to be of two kinds; nebulae which are only distant clusters of stars, and which yielded, one after another, to the resolving powers of telescopes as these powers were increased; 2d. nebulae comparatively near, which no increase of telescopic power affected. The resolution of a great quantity of the first kind of nebulae by Lord Rosse's telescope was, of course, expected; and it is a fact, though in itself interesting, of no consequence to the nebular hypothesis. It will be only in the event of the second class also being resolved, and its being thus shown that there is only one class of nebulae, that the hypothesis will suffer." To support this opinion, an extract from the works of Dr. Nichol is produced, a part of which is in the following language: "Astronomers have never rested their belief in the reality and wide diffusion of the nebulous matter on the objects referred to in the first paragraph, but on others much within the range of our previous vision. In so far as we have hitherto understood the nature of clusters, the telescopic power required to resolve them is never very much higher than that which first describes them as dim, milky spots. But there are many most remarkable objects which, in this essential feature, are wholly contrasted with clusters. For instance, the nebula in Orion, as I have fully shown in the text, is visible to the naked eye, as also the gorgeous one in Andromeda; while the largest instrument heretofore turned to them has given no intimation that their light is stellar, but rather the contrary, although small stars are found buried amid their mass. Now, if Lord Rosse's telescope resolves these, and others with similar attributes, such as some of the streaks among the following plates, we shall thereby be informed that we have generalized too hastily from the character of known

firmaments; that schemes of stellar being exist infinitely more strange and varied than we had ventured to suppose, and certainly we shall then hesitate in averring farther concerning the existence, or, at least, the diffusion of the purely nebulous modification of matter. Lord Rosse's telescope may also, as I have said, disprove the reality of our arrangement of the forms of nebulæ as steps of a progression." The same distinguished professor, in describing the appearance of one of the nebulæ, says: "On examining the middle star in the Sword of Orion, it seems affected by an indistinctness not common to small stars, and the application of the smallest telescopes at once yields the explanation, the object appearing, not as a star, but a diffused haze; examined with instruments of a profounder space-penetrating power, its character as a haze continues unchanged, though it speedily gives warning of some strange and fantastic object."

When Sir John Herschel's eighteen inch mirror was directed to the nebula in the Sword of Orion, fantastic branching arms were discovered, with such an extraordinary appearance as to induce Sir John to believe it something very different from a stellar constellation. In the winter of 1845, Dr. Nichol examined this nebula through Lord Rosse's far-reaching telescope, after which he says: "Owing to the incompleteness of the instrument and unfavorable weather, it was the first time that grand telescope had been directed toward that mysterious object. Not yet the trace of a star—looming, unintelligible as ever, there the nebula lay." The long-cherished hopes of the learned professor were all blasted. He who had measured the heavens, and furnished the geography of its wide domain, with the size, locations, and motions of its sisterhood, was compelled to turn once more from the contemplation of this wonderful phenomenon with feelings of profounder reverence and awe than the contemplation of kindred phenomena for years had been able to inspire. Not discouraged, however, by the failure of the first effort, the distinguished owner of the "Parsonstown Leviathan" continued his examinations until March, 1846, when a favorable opportunity enabled him to resolve the obstinate and astonishing phenomenon into a galaxy of stars; which fact he communicated to Professor Nichol in the same month. No longer a self-luminous vapor, or planet in its infancy, but "a bright firmament of stellar orbs, so far removed from us in space, that the brilliancy of its constituent stars are merged into a uniform, faint light." The difficulty is solved, and all the strange appearances accounted for as the effects of varying distances. The stars of heaven are perfect; no rudimental or half-grown ones are found; the choir is full. The nebular hypothesis vanishes as a pleasant dream, and with it the beautiful speculation of La Place, and the still bolder ones of our author. "The sun may have passed," observes Dr. Nichol, in a later work, written in explanation of his former, "into his present form out of a gaseous one, *but there is no phenomenal proof of this*—no visible analogical appearance in the heavens. In addition, therefore, to the duty of explaining the peculiarities of our solar system, La Place's speculation has now, along with other indirect arguments, to sustain the weight of its own hypothesis."

But it is said by our author that his theory does not depend on the nebular hypothesis for support; and if it were wholly exploded it

would not affect the force of the evidences introduced to prove a progressive advance from the lower to the higher forms of matter, under a "fixed order or law." We may admit this to be true, since it appears that the nebular hypothesis is the offspring of the imagination of certain learned philosophers; not, however, without phenomena to warrant their far-reaching speculations, but without an established fact to support them. We, therefore, without presenting any farther objections to this part of the "Vestiges," leave it in the light of Lord Rosse's unrivaled glass, where it appears without the least probability of truth.

Passing over many minor matters which, we think, do not affect the character of the theory, we turn at once to the deeply interesting history of past generations, as discovered by the eye of science in their fossil remains. We will not attempt to follow the "Vestiges" regularly through all the different strata of the earth, and genera of animals referred to; it will suffice to state the conclusion to which the author arrives, and show that the facts do not sustain him. We have seen that he advocates the nebular hypothesis, and that the world resulted from the operation of certain laws upon the nebula. He also contends that there is a regular advance from the simple lichen and animalcule to the highest order of dicotyledonous trees and mammals; and that this regular advance or improvement of vegetable and animal life, depends upon and is the result of certain immutable laws, the controlling influence of which admits of no deviation. The lichen and moss, the humblest forms of vegetable matter, improved upon themselves until they produced the forest monarch. The lightning's flash, and some wandering electric spark wakes an animalcule into life, to commence that system of organic improvement which continues until instinct ripens into intellect, and creatures of a moment are clothed with immortality. The worm, the reptile, fish, bird, quadruped, each in regular succession, are each the offspring of the preceding. Man, the noblest of all sublunary beings, endowed with an intellect capable of the widest range of knowledge, whose touch the elements of heaven obey—for whom all things were created—to supply whose wants a teeming world empties its rich profusion at his feet—to soften and ennoble whose character the music of a thousand spheres exhausts its melody—for whom the rocks were rent, the sun was darkened, and the last convulsive throes of expiring innocence were suffered—is the grand total of all the improvements. All this, too, the result of laws, independent of any action of Deity. Under their influence the thunder rolls, the lightning kindles the heavens with fire, the sea ebbs and flows, volcanoes bury cities, and the vagrant wanderers of space survey its illimitable fields; pestilence depopulates and earthquakes destroy; there is no God to direct, to limit or to stay, to pity or to save. He who

"——spangled o'er infinity with suns,
And wrapp'd it round about him as a robe,
——and wrote out his own great name
In spheres of fire, that heaven might alway tell
To every creature, God,"

is silent before the majestic workings of his own creation—stern and unchangeable—unmoved by pity or by love.

To sustain this strange theory, directly opposed as it is to the Mosaic cosmogony, and to the best interests and dearest prospects of man, something more than loose conjectures and mere suppositions must be introduced. Facts, and facts alone, are sufficient to disturb a faith inspired by reason and revelation, and sanctioned by the experience of past time. The speculations of the "Vestiges" depend upon an unbroken chain of phenomena, and unless it is established the theory must fall. If we can show vegetables and animals of a higher order prior, or, according to the "Vestiges," below those of an inferior character, the want of connection in the chain of evidence will appear, and the probability of the truth of the theory be proportionally weakened. "In pursuing," our author observes, "the progress of the development of both plants and animals upon the globe, we have seen an advance in both cases, along the line leading to the higher forms of organization. Among plants we have first sea-weed, afterward land plants, and among these the simpler (cellular and cryptogamic) before the more complex. In the department of zoology we see zoophytes, radiata, mollusca and articulata, existing for ages before there were any higher forms. The first step forward gives fishes, the humblest class of the vertebrata; and, moreover, the earliest fishes partake of the character of the next lowest sub-kingdom—the articulata. Afterward come land animals, of which the first are reptiles, universally allowed to be the type next in advance from fishes, and to be connected with these by the links of an insensible gradation. From reptiles we advance to birds, and thence to mammalia, which are commenced by marsupialia, acknowledgedly low forms in their class." This is the conclusion to which our author arrives, after viewing the fossils of the different strata in the earth's crust. But he is not sustained by the experience of distinguished men who have devoted their lives to the study of geology. Zoophytes, polyparia, crenoida, and other animals of a kindred character, were the only ones our author could find in the "Grawacke" system, and these, he says, "are found in the earliest of earth's sepulchres." But it appears, from the authority of Sir H. de la Beche, that bones and teeth of fish have been found in that system, proving that a comparatively high order of animals were among the earliest inhabitants of the world. And the testimony of this distinguished geologist is confirmed by his still more distinguished successor, Mr. Lyell, who says, "vertebrated animals, true fishes, are found among the earliest types of organism."

In the next, or "Silurian system," the same species are continued, to which, according to the "Vestiges," fishes of a very minute size are added, but of an order of mean organization. The records of geology contradict this statement, by establishing the existence of fish of the highest organization; the evidence of which may be found even below the strata in which our author places the first and meanest order of vertebrated animals, and out of the genera of an "obscure character," which are overlooked by the "Vestiges" to favor the theory of development. Professor Agazzis has found several new species, two of them of the very highest type. In the next era of the world's history, the "Vestiges" contradicts the learned Agazzis, whose grand divisions, with perhaps the single exception of the

cycloids, are scattered through the whole Devonian system, and those of the most advanced types are found preceding and following the inferior. In speaking of other fossils of this system, Prof. Agazzis says; "This primitive diversity of the Ichthyoid types, in a formation so ancient as the old sandstone, is in my opinion one of the facts the most contradictory to the theory of the successive transformation of species, and of the descent of organized beings now living from a small number of primitive forms." True fish of an advanced type, even the highest order, have been found in this system in Russia, by one of the most distinguished geologists living, Mr. Murchison, whose testimony is full and unequivocal against the development theory.

The "Vestiges" is not more fortunate in its statement of the carboniferous era. "Neither the hum of insects nor the music of birds cheered its solitude," says the author; yet we find Mr. Lyell and Dr. King testifying to the appearance of "footmarks of reptiles and birds, or other highly organized animals," low down in that system, both in Nova Scotia and Pennsylvania. Insects have also been found in its strata, of the most perfect yet delicate structures, proving that this era was not so destitute and solitary as supposed. Dicotyledonous and acotyledonous trees furnished it shade, flowers sweetened its atmosphere with fragrance, and birds of an advanced type kept its forests vocal with music. In the next page of the world's history, our author is "startled" by the appearance of reptiles of the Saurian (lizard) character, "animals whose imperfect respiratory system perhaps fitted them for enduring an atmosphere not yet quite suitable for birds or mammifers; and of footmarks of a tortoise at Corneackle Muir, and those of birds of the order of grallæ in Connecticut;" but this last fact seems doubtful, as it is yet without the approbation of geologists. All this agrees with the development theory, and our author is therefore startled at the unbroken chain of evidence which he finds in each successive page of the rock book. Professors Owen, de la Beche and Cuvier were not so much startled when they found "monster animals" of the Saurian tribe following in the era next after the transition or grawacke, long anterior in the fossil history to the low order of Saurians which our author found in the new red sandstone. It will be recollected that the footmarks of reptiles and birds were found in the preceding system in at least two distinct localities, to the truth of which at least four eminent geologists bear witness. His statement of the appearance of the batrachia is contradicted most positively by Prof. Owen, who says they make their appearance under their highest instead of their lowest forms or simplest condition of structure. Here we have most positive evidence against a regular advance. In the oolitic formation but little is found which is considered important to the theory; but it is "remarkable that the fossils of this system are *entirely different* from those of the preceding age, and they in their turn disappear before the next era." Are we to understand that the first were buried in their native strata before their successors appeared? If so, we ask in what way the second and higher were procreated by the first and lower order? The line of demarcation between the strata is perfectly drawn, and the fossils of each, according to the author, are equally

distinct. The first, then, must have passed away before the second appeared. How the family connection was maintained, we leave for the author to explain. The errors of the work are continued in the history of the cretaceous system, in placing the cycloids and ctenoids above plocoids; but, admitting the order in which they are placed to be correct, yet the theory of development is contradicted by Murchison, who found ctenoids as low down as the old red sandstone. But notwithstanding the errors introduced in evidence, as facts, the author finds it necessary to resort to suppositions to make out the regular development or advance, and in doing this he takes for granted the very point he is trying to establish—that there is, throughout, a regular progress from the humble to the superior types. He considers this established, and then *infers* that the *particular* animals *did* exist in the places assigned them by his theory, though they may not be found. “Hence,” he says, “we derive a light as to what animals *may have* existed at particular times, which is in some measure independent of the speculations of fossil geology. The birds are below the mammalia in the animal scale, and therefore they may *be supposed* to have existed about the time of the new red sandstone, and oolitic systems, although we find but slight traces of them in those formations, and it may be said, till a considerably later period.” This is assuming the question in dispute, and from it *inferring* the existence of the evidence necessary to support it.

Little or no benefit will result from following the author regularly through his catalogue of suppositions, inferences and errors. Thus far, it must appear to the satisfaction of every impartial mind, that the history of geology does not sustain the idea of a regular advance from the lowest or simplest to the highest forms of organization; but, on the contrary, proves directly the reverse to be true. Among the earliest inhabitants of the world animals of a high organization, differing in almost every particular from the structure of their more humble associates, are found, and not unfrequently the highest or most perfect of a type appear first in the singular record of their history; wholly contradicting even the possibility of “the truth of the development theory. It is said by Prof. Owen, and other distinguished authorities, that the general structure of the advanced order of fishes, upon which the theory engrafts the simplest forms of reptiles, utterly forbids the idea of the least possible connection between them and that tribe. The theory receives as little support from the order in which the vegetable kingdom is found, as from that of animal life. Trees of the largest description have been found in the strata, which our author assigns to the first appearance of lichens, the humblest order of plants; and below the strata in which he places the first lichens and mosses, the traces of dicotyledons are distinctly seen, as found in the grawacke slates at Cork, by Dr. Fleming. And these dicotyledons are found below the cryptogamic and monocotyledons, or lowest class of plants of vascular tissue. It is admitted, however, by the “*Vestiges*,” that a few dicotyledons existed during the carboniferous era, in which era he dates the commencement of land plants; but, the author adds, “they are comparatively few.” The truth of his theory is as much affected by the

appearance of a few as by many; it is not the quantity that determines this question, but the order in which they make their appearance. It will be recollected, however, that "these few" of the highest order are found below those of a simpler character, and therefore could not have resulted from them. The coal formation is represented as containing nothing but ferns and simple plants; but this is not true. According to the best authority, it contains trees of the largest and noblest character in great abundance.

Thus far we have wandered with the "Vestiges" through earth's earliest sepulchres, without finding any evidence, in fact, to support the theory of development. But if the history of fossils clearly established a regular advance in the ascending strata of the earth, from the humblest to the more complex forms, yet may we not doubt whether the advanced conditions of life sprung from the inferior species? Prof. Owen thinks the different species, in their progressive development, would maintain their typical character, and that if they did improve, no change of character would take place. Prof. Agazzis, after being specifically engaged for many years in the observation of fossils, says, "that he cannot admit the transformation of species from one formation to another." Muller, the celebrated German physiologist, says, that the species were created, originally, distinct, and that "there is not a remote possibility that one species has been produced from another." Baron Cuvier bears the same testimony, and denounces the theory as "chimerical," and asserts that it is "renounced by philosophy." The opinions of such men, expressed after they had formed an intimate acquaintance with the history of the past, as written in the hieroglyphics of buried generations, are quite sufficient to decide the question, particularly when there is no evidence worthy of the least degree of confidence produced to establish the contrary. To the weight of their evidence we may add that of Murchison, Vernuel and D'Orbigny, who are equally positive, and worthy of no less respect. And to these, again, may be added the name of Charles Bell, whose long experience and thorough acquaintance with the physiological character of animate matter will entitle his opinions to profound respect. In comparing the different formations with each other, it has been ascertained, that the higher species or more advanced genera of animals possess organs wholly different from any in the lower classes; and others which cannot be found in the humble species, and these of such a distinct character as to forbid the idea that they could have issued from the lower order.

It is only necessary to examine the distinct modes in which the air is permitted to act on the blood of the different genera of animals, to satisfy the mind that each species is the result of a distinct exertion of creative power; and that their organs have been adapted to the functions they perform by superior wisdom. The primary office of breathing in the economy of life is oxygenation of the blood; but in man it is also the instrument of voice and expression, two properties which have relation to his intellectual nature. The apparatus required for adapting the respiratory organs to these superadded endowments, is altogether different from that which is found in the lower animals, where the organ is subservient only to the purification of the

blood. The arrangement of the nerves is very different in the various types; and in the human frame a distinct class is appropriated to the organ of respiration, called the "respiratory nerves." The reason of the difference in the mechanism of the organ of respiration as it exists in the lower animals and the highest order of life, is obvious; in the one, it performs but one function, in the other, three. In man it is the instrument of articulate language and expression. There is not only a difference in the arrangement of the respiratory organ but there is an addition in the higher order; a new and distinct class of nerves is required to perform the functions and regulate the action of the superadded mechanism. In the lowest order of animals there is neither circulating system nor distinct respiratory organ. The first indications of this economy is found in the prolongation of the integument of the animal, in the shape of tufts or fringes, which float in the water and expose the blood to the oxygen contained in that element. In a higher order (as insects) there is a succession of holes ranged along their sides; these are the openings of a series of small tubes that extend through their interior, through which the air is admitted, and in this mode purifies their blood. The next higher order of the respiratory organ is very different from any of the former, being bronchiæ or gills, and of this there are many gradations. In the lower order of animals the mouth is used only for nutrition; this is the case with all the invertebrata; but in the vertebrata it is used for breathing as well as for nutrition. No indications of a true chest and wind-pipe appear until we ascend to the class of vertebrata. The chest or cavity, and wind-pipe, or tube communicating with it, are indispensably necessary to a high intellectual order of life. The cavity or chest must be capable of contracting the volume of air within, so as to expel it along the tube or wind-pipe with a stream strong enough to vibrate and produce sound.

Again, there is an important distinction between the structure of the chest in reptiles and birds, and in mammalia. In reptiles and birds no partition exists between the abdominal and thoracic cavities; or, in other words, we find no *diaphragm* below the mammalia. This new member circumscribes the space containing the lungs and gives them greater force, assisting them in their efforts to expel the air through the larynx, and contributes much to the impulse which produces vocal sounds and articulate language. Where the chest and wind-pipe acquire the compact form and new properties of the mammalia, new and peculiar sensibilities and formations are introduced, which are not found in the invertebrata, and are entirely disconnected with any organization or arrangement corresponding or similar to their own. The superior respiratory mechanism of man is to afford him an instrument corresponding with his superior endowments, to supply him with an organ adapted to the great purposes of communicating thought and evolving the powers of his mind, the attribute by which he holds his exalted position in creation.

For these facts we are indebted to Charles Bell's last treatise on the nerves, published since his death, and bound with his work on the "Anatomy of Physiology." There are other and important peculiarities of structure, with which all are familiar, and therefore need not be mentioned.

From these facts we can draw but one conclusion—that the organic structures of all the distinct species are as essentially different as the important parts they are to perform in the economy of life ; that they did not spring from each other, but that they are creatures of original design ; created by separate and distinct exertions, and adapted to the condition in which they are placed ; thought into existence by an omnipotent power—

“ Who spake, and it was done ; eternal night,
At God's command, awakened into light ;
He called the elements, earth, ocean, air—
He called them when they were not, and they were.
He looked through space, and, kindling o'er the sky,
Sun, moon, and stars, came forth to meet his eye
His Spirit moved upon the desert earth,
And sudden life through all things warm'd into birth.
Man from the dust he raised to rule the whole,
He breathed, and man became a living soul :
Thus were the heavens and all the hosts display'd,
In wisdom thus were earth's foundations laid.”

To confirm this, the smallest insect beneath our feet—the creature of a moment—and the systems of planets and stars, scattered through infinity, in a single revolution of which, unnumbered years are exhausted, unite their testimony. Each is a mystery beyond the comprehension of man, and both silently point him upward for the revelation he seeks.

It is a singular fact that the silk-worm cannot accomplish the object of its creation without the mulberry leaf, the substance upon which it feeds ; “and Providence, as if to ensure the continuation of this useful species, has so ordained it that no other insect will partake of the same food ; thus ensuring a certain supply for the little spinster.” This appears to be a small matter, but we know not how much importance to attach to it ; and it as clearly exhibits design and goodness in the creative power, as the law that holds together the bodies of our astral and stellar systems. The smallest feather on the woodland chorister, in its adaptation to the wants of the bird, displays traces of the same designing goodness. It will be seen, upon examination, that the filaments on the stem of the feather next to the body, and the fibres on the part which is exposed, are of precisely the same character ; but, in order to keep the body warm, the filaments nearest it are divided, so as to constitute down ; while the filaments on the point of the feather, or outer part of it, are so linked together by fine hooks that they constitute a covering to the downy part, which is thus protected from the inclemency of the weather.

In illustration of the “idea of final cause” or original design, Dr. Whewell introduces the discoveries recently made with regard to the process of suckling the kangaroo. “In the case of this, as of other pouched animals, the young animal is removed, while very small and imperfectly formed, from the womb to the pouch in which the teats are, and is there placed with its lips against one of the nipples. But the young animal, taken altogether, is not so large as the nipple, and is therefore incapable of sucking after the manner of common mammals. Here is a difficulty ; how is it overcome ? By an appropriate contrivance ; the nipple, which in common mammals is not furnished with any muscle, is, in the kangaroo, provided with a powerful ex-

trusory muscle by which the mother can inject the milk into the mouth of her offspring. And again, in order to give attachment to this muscle, there is a bone which is not found in animals of other kinds. But this mode of solving the problem of suckling so small a creature, introduces another difficulty. If the milk is injected into the mouth of the young one without any action of its own muscles, what is to prevent the fluid entering the wind-pipe, and producing suffocation? How is this danger avoided? By another appropriate *contrivance*; there is a funnel in the back of the throat by which the air-passage is completely separated from the passage for nutriment, and the injected milk passes in a divided stream on each side of the larynx to the œsophagus. And, as if to show that this apparatus is really formed with a view to the wants of the young one, the structure alters in the course of the animal's growth; and the funnel, no longer needed, is modified and disappears."

Evidence of final cause not less convincing, is found in the anatomy of the horse. In the case of the kangaroo the *appropriate contrivance* is necessary to the young animal's life; in the horse, it only furnishes a means of defense from flies. Dr. Warren observed in a lecture recently delivered before an agricultural society in Boston, "that the first and largest muscle which presents itself in taking off the skin of the horse is, however, one which does not exist in the human body. It commences about the middle of the back and extends over the ribs to the belly. This is the muscle of the skin, and its office is to move the skin in detached parts, in order to free it from any annoyance, such as a fly, &c. There is nothing of the kind in the leg or thigh, as they are protected by the tail." Whether the fact of this important *contrivance* adds anything to the evidence of final cause furnished by the kangaroo, is for the reader to determine. The smallest flower of the field is equally interesting, as an evidence of design and goodness. The leaf and flower are of the same material; yet one is green, the color most refreshing to the eye; and the other variegated with almost every color—as gratifying as the other is refreshing to that organ. But another difference equally difficult to account for, exists—one has no fragrance, the other has, and when bruised, it reminds us of the spirit of forgiveness, of which it has been chosen the beautiful emblem.

Thus it appears that final cause has been written on the plant of a season—the worm, whose largest cycle of existence lasts but a few days, and in animals extending down even to the means of defense from a fly. By turning our eyes from these simple witnesses to the globe we inhabit, we find testimony tending to prove the same fact, written in larger characters. The world with its motion around the sun, producing a grateful succession of seasons just suited to our organization—its daily revolution furnishing light and darkness, "giving an alternation of labor and rest, nicely corresponding with our muscular power, with its attraction upon the matter of our own bodies, just sufficiently great to give them the requisite stability, and not so great as to deprive them of the power of free and rapid motion"—its atmosphere, "an appendage which does not arise from any known physical law;" but is indispensably necessary to the animal and vegetable kingdoms; "being the medium through which

sound is transmitted," and the material out of which the chemical operations of the lungs distil the element that purifies the blood, and imparts to it its life-sustaining power. "Without the atmosphere, even supposing we could live in its absence, however perfect might be our organs of speech and hearing, we should possess them in vain. Voice we might have, but no word could we utter; listeners we might be, but no sound could we hear." It is no less important "in diffusing in an agreeable manner the solar light, and mitigating its intensity. In its absence the light of the sun would only illuminate objects on which its direct rays would fall; all other places would be dark even at mid-day; we should have no other degrees of light, but the glare of intense sunshine, or the most impenetrable night. It retains and diffuses warmth, whether proceeding from the sun above, or from sources of internal heat within the globe itself," and by this means prepares the globe for animal and vegetable life. "It preserves the seas liquid, and by supplying propitious winds to stimulate the intercourse of nations, knits together races of beings who occupy the most distant points by the kindly bonds of reciprocal beneficence." Without an atmosphere nothing could exist—man's highest privileges are connected with, and appear dependent upon it; yet "it is not essential to any of the great mechanical functions of the earth in the economy of the solar system." Without this atmosphere, the globe would perform her regular revolutions, maintain her axis, and discharge all its various offices to the system of which it is a member; yet it would be an arid waste. Volcanoes it might have; but no cities for destruction—mountains and valleys might diversify its surface; but they would be unenlivened by the murmur of streams, or the music of animate matter. Seeing, then, that the atmosphere does not arise from any known physical law, and is not essential to any of the mechanical functions of the earth in the economy of the solar system; but is indispensable to the existence of vegetable and animal life, as well as the higher faculties of man; are we not driven to the conclusion, that it was cast around the earth by Him "who careth for us," expressly for the well-being of its occupants?

From the worm of the dust and flower of the field, and bird of the forest, to our own globe, and the innumerable worlds that shine above our heads, reflecting the image of each other in the grand, still mirror of infinity, traces of the same all-pervading, eternal wisdom are seen in the beauty of arrangement and adaptation to each other. Man himself, more mysterious than all else—grander than the world with all its spirit-stirring scenery—more glorious than the star-bespangled firmament—higher, highest of all created matter—whose eternal part enables him to grasp the whole, and will live in the freshness of its youth when all else shall have passed away—is but a farther exhibition of the same almighty, all-designing power.

We have thus noticed the prominent parts of the work; and would gladly devote a few pages to the less important divisions, if the space allowed us would permit. We will not, however, pass that part in which the author refers to resemblances of the brain of the human fœtus to the different species in silence. To support this absurdity,

he introduces the evidence of others, whom he considers worthy of confidence. We rebut this by the evidence of distinguished physiologists, who have examined the fœtus in at least five different stages of its existence; and deny most positively that any such resemblance exists. If it does exist in the brain, why not in the body generally? It is well known that the fœtus from the first appearance of a distinct form is perfectly natural. But this part of the work is disgusting in the extreme, and excites anything but respect for the author. We therefore leave it.

The author of the "Vestiges" closes his work after convincing his own mind that "life is everywhere one," and that "the inferior animals are only less advanced types of that form of being perfected in ourselves;" with assurances of his belief in the existence of an all-wise Deity, with power to make and uphold. But he insists that that all-wise Deity has no immediate and direct action in creating and upholding at this period of time. Laws once created by the great I Am, now build up and destroy—rule and regulate the whole. Man need not hope for any exemptions from the established law; he need not struggle to improve himself or his species; through a certain stage of existence he must pass, and in such a manner, without any sympathy from a merciful Creator, to whom he has been directed to offer his morning and evening orisons. No overruling Providence notes his grovelings in the dust, or smiles with approbation on his nobler aspirations. The story of the pillar of fire by night, and cloud by day, is all a fable; and the history of Calvary, the offspring of the imagination. It is true, the author does not use language like this, but such sentiments may be found indirectly expressed in almost every page of his work. He, however, encourages us with the hope that a faith may be drawn from his theory, sufficient to sustain us in all the difficulties of life. This faith is to be drawn from a theory which denies all the attributes of the Superior Being—contradicts the eternal truths from which the hopes of life issue, as well as that far-reaching faith that extends beyond the difficulties of this sphere of being into the bright realities of an infinitely higher and purer one. A theory that denies the parental care of an ever-watchful and merciful Creator, whose unalterable covenant is written on the firmament, and without whose notice not a hair of the head is permitted to fall—at whose bidding water burst from the rock, manna fell from heaven, and the sea rolled back until the devoted host had left their native land, then heaved an ocean on their march below. A theory that denies accountability, by degrading mankind to the character of advanced reptiles, and regulates morals by law. A theory which destroys every hope and blasts all the fruits of faith, but offers nothing consoling in their place. Upon what place are we to rest? where find the elements of the sufficient faith? where the consolation which is to keep up the sinking heart? and where the lessons of warning to the oppressor, that there will be a day of reckoning? It is more agreeable to our feelings to look up to God as a kind and merciful creator, who loves, pities and protects us—and this view of Deity does, indeed, furnish a faith sufficient to sustain us in all the difficulties of life—a faith that cannot be annihilated; which has survived the buffetings of ignorance—the persecutions of malice—the

prison—the scaffold—the cross and the grave. With it we are content, and shall “wait the end with patience, and be of good cheer.”

Art. III.—JOHN LAW AND THE MISSISSIPPI RIVER IN OLDEN TIME.

A DESCRIPTION OF THE COUNTRY AND RIVER MISSISSIPPI, IN NORTH AMERICA, BELONGING TO THE KING OF FRANCE.

The following manuscript was presented for our curious inspection by George P. Putnam, Esq., of New York, and is, with his permission, committed to print. It is a very antique paper, and bears upon its face all the evidences of its time. The characters are bold and peculiar, and often indistinct. Mr. Putnam purchased the manuscript in England, among other similar and curious relics of other days. It will have interest from being a document contemporaneous with the extraordinary career and enterprises of John Law, and gravely pronouncing upon them in the language of one yet “in the fullness of faith.” We trust the manuscript may be preserved among the papers of the Louisiana Historical Society. Its date may be fixed at 1718 or 1720.

THIS vast country of Mississippi lies along that large navigable river, Mississippi, being about 800 leagues or about 2,000 miles long. This country borders upon Mexico, whereby the French may soon become masters of Mexico, as well as Peru, with its inexhaustible mines, which may in time alarm the English and their South Sea Company.

Mississippi borders upon the English plantations on the Continent of America, whereby the French can easily fall upon Virginia, Maryland, Carolina, &c., and so may be able to furnish all Europe with tobacco, sugar, &c., much better and cheaper than we can do by the English plantations.*

Mississippi is of such a fine, wholesome, temperate climate, and wonderfully fruitful soil, that it produces everything useful for mankind, and is now come to such a gigantic power as surprises all Europe.

It has now paid all the public debts of France, which at the death of the late King, Louis XIV., extended to 1,800,000,000 livres, which is about £150,000,000 sterling. And now, by the great conduct of the Duke d'Orleans, Regent of France, their public credit is so restored, that from 60 per cent. discount their State bills are now exceedingly above par. Their East and West India, or Mississippi Company is completely formed, which, from 64 per cent. discount formerly, is now above 2,000 per cent. Their bank, established at Paris, is of such vast credit as the like was never before in this nation, where not long ago it was harder to fix a public credit than in any country in Europe; and all this sudden and surprising turn of affairs is owing to Mr. Law, whom the Regent received and approved of his schemes for that end.

The Mississippi Company has at present, in cash and credit, much above one hundred million sterling, which has made France so to flourish, that the city of Paris is now so much frequented by all na-

* When has England ever been mindless of her commercial interests?—Ed.

tions that the nasty dirty street of Quinquempoix, in Paris, is more frequented now than the Royal Exchange at London.*

To describe this vast country and river Mississippi, and how it was first discovered and afterward carried on, is as follows:

We find no account of this river, Mississippi, until the year 1674, though it is thought that something thereof might be known in the days of Hernandes de Soto, who crossed over it Anno 1541, when he returned from his fruitless expedition against Florida.†

Anno 1674.—Count Frontenac, Governor of Canada, supposed that this river fell into the Bay or Gulf of California, and so might open a passage into the South Sea; therefore he ordered Mr. Jollet and some others to undertake the discovery thereof, who set out from the Bay of Puantis, on the Lake of Illinois, and went to the westward by water 60 leagues, and then carried their canoe overland half a league, and went next upon the river Misunsin, which conveyed them into the river Mississippi in latitude $42\frac{1}{2}^{\circ}$; then they followed its course directly south to latitude 34° , and were to go to the mouth thereof, but some frightful stories of devouring monsters and devils who guarded the mouth of this river, and the fear of meeting with the Spaniards, &c., made them return home the same way they had gone, when they had only come to know that this river Mississippi did not fall into the South Sea, nor to the eastward of Florida, as they had supposed.‡

The next discovery of this river Mississippi was made by Monsieur de la Salle, a Jesuit, who had a settlement in Canada in the island Montreal, on the river St. Lawrence, 60 leagues above Quebec. He was made Governor of Canada and proprietor of Fort Frontenac on the Lake Ontario.

Mr. de la Salle, from a desire to find out the rich mines in St.

* JOHN LAW AND THE MISSISSIPPI SCHEME have been made famous in the history of the world. The great magician here was a Scotchman, whose extensive travels and commercial studies brought him to the belief that a paper currency was indispensable in the conduct of great commercial enterprises. He insinuated himself in the favor of the Duke of Orleans, afterward regent of France. On the death of Louis XIV., France was bankrupt; a revolution was expected; the currency was debased; John Law returned to Paris; his magnificent proposal of a bank was acceded to; the stock rose immediately in value; monopolies of various kinds were added to it; France was inundated with paper money; a farther depreciation of coin took place; the Mississippi Scheme was added to the Bank, with exclusive privileges of trade to the East Indies, China, South Seas, and all the possessions of the French East India Company; fifty thousand new shares were created, on which a profit of 120 per cent. was proposed; three hundred thousand applications were made for these shares; all the nobility of France were in waiting upon Mr. Law; for access they secured residences in his neighborhood; three hundred thousand new shares were taken with enthusiasm! the Rue de Quincampoix was crowded day and night; rents rose in it 1,500 per cent.; a cobbler's stall received 200 livres a day from brokers: men carried desks upon their backs to be used by speculators, and amassed fortunes! Law was forced to seek more private quarters—but vain the attempt; his new residence became the resort of all the elite and fashion of France; ten thousand expedients were resorted to in order to see him; one lady had her carriage upset on his approach; immense fortunes were realized in a few days or hours; Paris grew in population, wealth, luxury, and splendor!!

But, alas, the catastrophe! the offended Prince of Conti makes a draft upon the bank for specie; others follow daily and quietly; slight uneasiness beginning to be felt, an edict prohibits persons from holding over 500 livres of coin; the people cry against it; the consternation, the ruin, the bankruptcy which ensued and overwhelmed France is too well known to be repeated. The financial empire of Law became a vast and amazing ruin!—Ed.

† At this period, Europe appeared ignorant of the details of De Soto's Wanderings. See Commercial Review, Vol. III., No. 6.—Ed.

‡ See an article on La Salle, in S. Q. Review, 1845, contributed by us.—Ed.

Barbe, and to find out a nearer passage into the South Sea (than through the straits of Magellan), which he hoped to do by the Mississippi river, Anno 1670, goes to France, where he gets his orders from the Court, and Anno 1672 he returns to Canada to pursue his designs, and so appoints father Hennepin to travel to the northward and to trace this river Mississippi up to its source—reserving to himself the honor of searching for its mouth. But Hennepin (who set out long before De la Salle) first went down the river Illinois into the Mississippi, and instead of going north to its fountain-head, he went first south and down the stream thereof to the Gulf of Mexico, where he found it emptied itself through three different channels or mouths, between the 27th and 28th degrees of north latitude, and then he went back toward its head, as far as 50 or 51 degrees of north latitude.*

Anno 1682, Monsieur de la Salle went down this river Mississippi, which he found parted into two branches about 60 leagues from the sea.† He followed the northernmost branch, and discovered its mouth between 28 and 29 degrees of north latitude.

Anno 1685, M. de la Salle, in order to find the entrance of the Mississippi river at its mouth, whereby to make a communication between Canada and the Gulf of Mexico, gets from the King of France three ships and a man-of-war and provisions and comes into the Bay of Mexico, where he searched three weeks for its mouth; but not finding it, he goes ashore a little to the south-west of its mouth, where he was, unfortunately, murdered and his ships lost, which stopped that project.

Anno 1698, Monsieur de Iberville, a famous gentleman born in Canada, sailed from France into the Bay or Gulf of Mexico, where he found out the mouth of this river Mississippi, where he built a fort and left a garrison therein. He went again a second voyage with new reinforcements, and went far up into the country, where he discovered many savage nations and made alliances with them, and built another fort, which he left well manned and stored. And in his third voyage back to Mississippi he died, which laid aside this enterprise again.

Anno 1712, the King of France, by letters patent, granted to his Secretary of State, Monsieur Crozat, the sole power to settle colonies and trade in Mississippi, and all the countries lying between Carolina on the east and New Mexico on the west. This grant M. Crozat kept twelve years, until Anno 1724, when he resigned it to the French West India Company (for a great reward), who now possess the same and are now called the Mississippi Company.

So that the French have pursued this design of the Mississippi Company for the space of forty-six years before they got it perfected, which they did at last by the assistance of Mr. Law.

How far the French may yet extend this vast country of Mississippi, is not known at present; but that part of it which was granted to Monsieur Crozat (and now vested in the French West India or Mississippi Company), is bounded by New Mexico on the west, and

* Hennepin never descended the Mississippi to the mouth. He fabricated a story of the sort, which has been abundantly refuted. See Sparks' Life of La Salle.—Ed.

† Monsieur De la Salle found no such thing.—Ed.

English Carolina on the east, and by the river Illinois on the north, and the Gulf of Mexico on the south; wherein, if all the tracts of land in Mexico not possessed by the Spaniards and the English (though claimed by both) shall be comprehended, it will take in more than two-thirds of the Gulf or Bay of Mexico; and reckoning from Santa Fé in New Mexico to the English's most northerly settlements in Carolina, is about 24 degrees of latitude, or 1,440 miles from east to west; and from the mouth of the river Illinois to the mouth of the Mississippi river is 150 or 160 leagues in a strait line, or about 500 miles broad from north to south, and therefore 1,440 miles long from east to west.

But this vast country of Mississippi, above described, is only a part of Louisiana, which the King of France (by a reservation in his patent) may enlarge when he pleases. The whole extent of that immense country of Louisiana, reaching to the South Sea, Japan and the Frozen Ocean.

Father Hennepin, in his book, dedicated to King William, of his travels through a great part of that vast country, positively affirms, that Japan is contiguous to North America, and the great Gravius was of that opinion, and that an easy passage may be found out from Louisiana to the South Sea, by rivers which run beyond the Mississippi, deep enough to carry ships of burden, &c. Father Hennepin offered to King William to make this discovery for the glory of England, but his alliance at Spain prevented it; which alliance proved also fatal to the Scotch settlement in Darien.

Father Hennepin says, that this country of Louisiana and Mississippi is so temperate and healthful, that it may be called the French paradise, and the inhabitants are scarce subject to diseases. The soil is so fertile that it yields two crops yearly without plowing or sowing. It has great abundance of sugar-canes, tobacco, cotton-trees, silk-worms, corn, hemp, vines, &c. It has plenty of fishes, fowls, and beasts, of many kinds not found in Europe. Their wild oxen are much larger than ours, and, instead of hair, are covered with fine wool, as fine as on any sheep in Europe. It is also well stored with mines of iron, copper, and silver, in St. Barbara, St. John's and Ende, dug up by the Spaniards, &c., and many gold mines near the river Missouri. But the chief glory of Louisiana is the river Mississippi, the finest river in the world. It springs from several lakes to the westward of Hudson's bay, and bending its course directly south it falls through six large channels or mouths into the Gulf or Bay of Mexico. It is about 800 leagues long by its windings, which is 2,400 miles. It is free from shoals and cataracts, and all navigable within 60 leagues of its source. The channel is deep and the current gentle, except at certain seasons of the year (like the Nile) it swells with floods, by the rains and snow in the northern regions. Its banks are adorned with delightful meadows and groves, and wild beasts, &c., and inhabited by about 200 different nations of tractable and ingenious people. Three of the six mouths of this river Mississippi are fit for the greatest ships, with safe harbors therein.*

* The book of Hennepin, which is referred to, is in general reliable in the description of places, etc. He was a man of great observation, had traveled extensively, and was acquainted with other travelers as well as their writings.—Ed.

The Mississippi river has a great number of other navigable rivers which run thereinto from the east and westward, whereof are six or seven each about 300 leagues in length, which fall therein below the Illinois; and some of these rivers take their source from the Apalochin hills, near to the English settlements in Carolina; and higher up on the same side are many more rivers, which by means of others afford a conveyance into several great lakes, and from thence into the river St. Lawrence and Hudson's bay. Those rivers from the westward are more numerous and much longer. The river Missouri runs from the north-west about 6 or 700 leagues, beginning from a mountain in Cibola, where another river issues forth and runs into the Gulf of California; and probably it is this way that M. de la Salle and Hennepin proposed to go to the South Sea. In short, the vast river Mississippi, with its many branches (extending over all the immense country of Louisiana), may safely open a communication between New Spain and Canada, and between the South Sea and the Gulf of Mexico. So that the old verse applied to Egypt and the river Nile, may be applied to Louisiana and the river Mississippi, viz:

*"Terra suis contenta bonis, non indiga moreis,
Non Jovis, in solo tanta de fiducia Nilo."*

The rivers Mississippi and St. Lawrence (with the lakes and rivers which run between them) surround all the British provinces and colonies on the main of North America; and by some of these rivers falling into the Lakes of Champlain and Erie, the French have made many descents from Canada upon the British northern colonies, and laid some of their provinces waste.

The city of New York (belonging to Carolina) stands on a branch of Hudson river, and there is only a land-carriage of two leagues from the Lake of St. Sacrament, at the bottom of the Lake of Champlain, to the other branch of the Hudson river, within 60 leagues of Quebec. By this means the French made several incursions on the inhabitants of New York, and can come the same way to Virginia and Carolina, from the Lakes of Frontenac and Erie. So that the British plantations lay very naked for the French, because the English have no forts and garrisons to defend their frontiers.

Nova Scotia is the only British province in North America which can be made a barrier to cover their other plantations from the French, both by sea and land. This country of Nova Scotia (or New Scotland) is bounded by the river St. Lawrence on the north and the Bay of Francois on the south (from the river St. Croix west to the Isle of Assumption east), together with the peninsula of L'Acadie. King James VI., in Anno 1621, granted this province of Nova Scotia to Sir William Alexander, Earl of Sterling, who sent here many Scotch gentlemen, who were heritors thereof by their patents as Baronets or Knights of Nova Scotia.

The French (from whom it was first taken) became masters of it again, and kept it until Anno 1654, when the English, under Cromwell, retook it and kept it till the Restoration, Anno 1666, when it was again delivered up to the French, who kept it till Anno 1710, when Queen Anne dispossessed the French by General Nicolson, who

called Port Royal Annapolis Royal; and by the treaty of Utrecht, 1711, all Nova Scotia and the islands thereof (except Cape Breton) is now possessed by the British, who have garrisons, &c., therein.

Art. IV.—FIRES AND FIREMEN.

OF all the terrific demonstrations of the gigantic forces of nature, of the power of the elements, and the most appalling, is to behold a great city wrapped in a general conflagration. How vain and impotent is the strength of man then—when the fiend of fire acquires this masterdom! Look back along the pages of history, and you will find them lurid with the conflagration of cities—their vast smokes trailing like long thunder-clouds athwart the blue skies of the past! Behold the cities of the plain wrapped in the lightnings of heaven, which burned with such relentless wrath, that their very foundations were obliterated, and the ashes of their bitterness yet poison the waters of the Dead Sea. Look at Jerusalem, the chosen city of God, the depository of the world's richest legacy, of salvation—with all her golden temples, and multitudinous spires, that flashed back the light of the Asiatic sun—blasted before repeated conflagrations, from which she ever and anon, phoenix-like, revived, until at last with her beautiful temple, and renowned in history, she was laid in ashes by the Roman Titus—her terrified population shrieked aloud, with one voice, "Let us go forth! let us go forth! for the God of Zion has deserted the city of his love!"

Turn to Rome, the embodiment of all the trophied splendors of antiquity—where science and art, sculpture, painting, and architecture displayed their richest revelations till the whole city was a wilderness of the fine arts! With what queenly pomp, magnificence, and beauty does she recline upon the lap of her lovely Latian shore, bathed in the rich sunset of a Mediterranean heaven! Night passes over, when suddenly at the command of the great imperial despot, Nero, she is enveloped in flames, and all her Seven Hills blaze with the fires of death and destruction. Ten days behold her weltering in that sea of flame, and one half of her loveliness is swallowed up by the jaws of fire. Ah, what a wild chorus of human agony made the refrain of the fiendish *music* of her hellish incendiary.

Pass your eyes down the pathway of time, and in 1666, you behold London—multitudinous London, burning without intermission for five days, till thirteen thousand houses, property worth ten millions of pounds sterling, and more than seven thousand lives, perish in the conflagration! This is the **BIG FIRE** of history, and it was long, very long, before the desolated metropolis recovered from the visitation.

When Napoleon bore the standards of his crushing conquests to the very heart of Russia, the patriotic population of her greatest city rather than suffer its gorgeous dwellings and sumptuous palaces to afford shelter and protection against the rigors of a northern winter, to the invading armies of France, committed all its accumulated wealth to the destruction of fire. Terrible was the scene there present—

ed, as the great funeral pyre of patriotism blazed up to the heavens, and sent its long, red, lurid flashes far over the snows of Muscovy. In its light the pinnacles of the Kremlin shone like a Pharos of desolation ; and the Tartars and the Cossacks, the dwellers by the Black Sea, and from the mountains of the Ural, saw the steel-clad legions and invincible warriors from the sunny vineyards of the Seine and the Rhoné, driven back by the fury of one element to perish in the dreadful winding-sheets of another.

These enumerations might be extended, but we desist. Thus ever has it been with fire, when its progress has been unrestrained. It has consumed the noblest structures of human skill and industry, the costliest creations of every art, the proudest monuments of genius and invention, the richest acquisitions of commerce, the most valuable treasures of science and learning—the chief trophies of civilization and social progress in every department. The temple of Ephesus, burnt by Erostratus, to achieve an immortality of infamy, and the library of Alexandria, sacrificed by the malignant bigotry of Omar, are isolated instances from an extended series.

In all the earlier ages of the world, fire was a despot and a terror, notwithstanding its utility and beneficent services when kept under control. Man had not then acquired its masterdom, and it was viewed with awe and wonder, as well as religious veneration. A household familiar, it was yet regarded with fear and trembling, whether displaying its lambent beauty on the hearth, or sweeping with the whirlwind through the ignited forest ; whether smiling in the trembling beauty of the evening star, or hurtling like the blazing arrows of battling divinities through the thunder fields of the heavens ; whether shining—in the thought of Homer—upon the blue plain of midnight, like the multitudinous camp-fires of an innumerable army, or bursting up through the craters of volcanoes, those torches of the world ! and whelming Herculaneums and Pompeiis in its path ! Imagination lent terrors to the power which science had not learned fully to control, and man was in turn the votary, the victim, and the vassal of an element which often in an hour destroyed the accumulated productions of centuries.

It is only within modern times, and comparatively a very recent period, that all the beneficial employments of fire, and effective means of checking and quelling its devastating progress have been discovered. The world for the last fifty years, rests in greater security against this dangerous element than it ever did before. Science and systems of co-operation have given guaranties for the safety of property and life, which, had they existed in the periods of the past, would have spared the world from many of the destructive conflagrations I have alluded to, and have greatly contributed to the sum total of human wealth and prosperity. Not to enumerate the other achievements of science, the improvements made in the fire-engine and its apparatus, by Newsham, Rowntree, Braithwaite, Ericson and others, have erected barriers against the ravages of this element, which have greatly enhanced the security and consequent value of property, and diminished the danger of destruction to human life ; and which are worth more than all the policies of all the insurance offices in the world. It does not belong to me now to designate

these improvements ; let me but linger for a while upon a consideration of the *means* by which these inventions and discoveries are put into practical application.

Man's battles with the elements aided by all the achievements of science, are still severe and terrible. He can make the pinions of the wind waft his richly laden argosies across the bosom of the subjugated sea ; but he sinks helpless as a child before the mighty onset of the hurricane and the sirocco. He has converted the rivers of the earth into channels of travel and commerce, and made them labor as operatives in manufactures and mechanics ; but he is as weak as Canute to impede the progress of the inundation, or control the roused wrath of the ocean. He has hooped the earth around with bands of iron, along which the steam-horse and the locomotive palace—children born from the wedding of the discordant elements, fire and water—speed with the celerity of thought ; but ever and anon some terrible casualty rends his strength asunder, and scatters his wealth and trophies, his torn and mangled members, in such bleeding and chaotic ruin, that not even the mother who bore him could recognize the child of her bosom. He has caught the wild lightnings of the heavens, and tamed them like carrier-pigeons to the conveyance and expression of his thought ; but still the red arrows of the Titans, despite the inventions of a Franklin or a Morse, will cleave the lofty dome, and envelop his palaces and dwellings in a blaze. He has made fire a household slave, a lamp for his feet in darkness, a servant at the altars of his god, an efficient agent in every art and occupation, the illumination of his cities, the spirit of machinery ! till the great Promethean spark vivifies all existence ; but still, as we keep saying, his mightiest energies, his deepest science, his sternest courage, his most wakeful vigilance, are all requisite to check and guide, to conquer and control this wayward element. Individual effort is inadequate to the task, and thence the numerous associations such as yours, for the protection of life and property.

Society has devised no other adequate means for security against destruction and loss than those that are to be found in the bold hearts and stout arms of her sons, when uniting their strength, courage, and vigilance in a common cause. All the devices of law, or of mere commercial union, look only to reparation and relief after the injury has occurred. Insurance companies are instituted upon this principle. Though I would not depreciate their advantages, though I admit that the premiums paid for their policies are investments wisely made, yet if there were no other safeguard against the dangers of fire, one night's conflagration would prove the fallacy of relying upon the assurances of underwriters. In many instances these institutions have themselves been bankrupted, and their own capital perished, amid surrounding ruin, in the ravages of that element against which they vainly pretended to give protection. Acts of incorporation, and charters, and by-laws, and certificates, and not unfrequently the stock upon which they are issued, are but perishable paper, but "leather and prunella," which in a general devastation shrink away as parched, and wilted, and worthless, as any of the scrolls or parchments which were consumed in the palace of the Ptolemies. Who does not remember what happened but a few years ago, in the great fire in New

York! Streets crowded with all the proudest monuments of architecture were reduced to heaps of smouldering ashes; thousands were driven forth without a roof to shelter their heads; men of wealth were converted into paupers, and the incorporated bodies, Phoenixes, and Etnas, and Vesuviuses, were alike submerged in the smoking lava of ruin! These institutions, like all the other interests of the community, can find their only sure reliance in those precautionary fraternities whose principle and policy is to prevent rather than recompense—to keep the man of property secure in his possessions, by guarding against and checking the first footsteps of danger.

Firemen are the sentinels of society. They are the self-constituted guardians of municipal repose. Theirs is no idle, holiday amusement. They assume the heaviest and most responsible duties. Little does the world reflect upon the qualities essential to a perfect fireman. He must be firm, prompt, and resolute; vigilant, faithful, and active; energetic, laborious, and untiring; chivalrous, public-spirited, and philanthropic. All these qualities belong to his character, and all these qualities have been displayed by this class of men. How often, when the hand of the incendiary has applied the torch to the dwelling of some unconscious inhabitant, who is calmly reposing in his stately edifice, with his wife and children around him, little dreaming of danger, has the rapid tolling of the distant bell, and the solitary cry of "FIRE!" rung out upon the midnight air! Then there is a sudden appareling of man, the rushing of swift runners from every part of the city; in a moment the rattling of the engines through the stony streets; the hoarse cry of the director! Soon they reach the spot of the conflagration; the malignant incendiary has done his work well; the flames are bursting out from a hundred points; the stately edifice is wrapped in a blaze; the adjacent buildings have caught like flax; the wind of the night is sweeping the waves of fire in every direction. All is confusion, hurry, and alarm. The firemen come. The engines are wheeled around the blazing scene; the long hose is unwound, like huge serpents, through the streets; suddenly, by superhuman exertions, the engines are put in play; the broad, white, vollied water spouts upon and around the flames! Ah! how they hiss in the contact. The progress of ruin is stopped in this direction; that long line of stately buildings is saved from destruction. But away to the left, the flames make a more terrible struggle. They have found a fuel that yields like tinder to their embraces. In vain are the exertions to extinguish the flames here. The effort must now be made to rescue property and life. Where now is that sleeping father and his family? Some have escaped, but others are missing; some fair child, or maiden in her virgin beauty, is environed in the smoke and flames of the upper stories of the building. "Make way! make way!" is cried through the crowd, and the long ladder is brought and placed against the window. One gallant form rushes up the rounds, and dashes into the blazing edifice. He is lost to the sight! The streams of water play in to protect his way; but the crumbling wall reels and totters, and is about to fall. Great God! shall he perish in the ruin? No! He reappears with the form of the lost one in his arms; he leaps upon

the ladder, and descends amid the long, loud shout that hails his safety and his triumph!

Is this but a picture of fancy—the coruscations of an inflamed imagination? No: such scenes have occurred a thousand times in the annals of our cities, and they show the courage, the chivalry, the heroism of our firemen. All honor, then, to the brave sentinels and soldiers of peace!

But there are other properties of character in the fireman, which, if less striking and brilliant, are equally honorable and praiseworthy. The disinterested benevolence, the unselfish devotion, the philanthropic purposes, looking to no recompense but a consciousness of well-performed services, which are the parents of all such associations as this, and among the highest characteristics of human nature, and which, when widely developed among a people, are the surest reliance, the richest property of a nation. Rightly did I hear an eloquent orator say in Congress, that if we had no other standing army, our country would be safe in her firemen—her sword in war, as they are her shield in peace.

NOTE BY THE EDITOR.—GREAT FIRES.

The above paper, contributed by our eloquent friend, cannot be considered altogether out of place in the Review. A glowing fancy has painted, in strongest colors, the terrors of the devastating element which sweeps away our cities at a breath, and involves in ruin great communities. Are not fires and firemen subjects of practical interest enough, to secure them a place among the other agencies which control our lives and fortunes?

In every city in the Union, the FIRE DEPARTMENT has come to be of leading importance, and comprises the most active, energetic, and valuable citizens. They are a surety to our property and our lives—the watchmen who snuff the first approaches of danger.

It is true that their institution is of modern date. Other ages had little of the kind. The conflagration raged at will, and mocked the undisciplined efforts of mere crowds, awing them into blind dismay or stupid resignation!

The FIRE or forcing ENGINE is ascribed to the inventive genius of Ptolemy Philadelphus. It is supposed the Romans were acquainted with some such invention, for the letter of Pliny to Trajan complains that Nicomedia was destroyed by a neglect in using it. The ancients, however, must have made little use of the engine, since it is ascribed as the independent invention of a German. In 1518, it was used in Augsburg, Germany. Engines began to be built in 1657 extensively by Hantsch, and were introduced into Paris, 1699. These were very rude, and it was long after that the air chamber was appended. Small engines of this construction weighing sixteen pounds, and carried by one man, threw a jet of water thirty feet, and this was the model! The hose was invented by two Dutchmen at Amsterdam, and it is said that before its introduction the city lost 1,024,130 florins in ten years, and afterward but 18,355 florins in five years, by fire. Mr. Perkins added the rivets, instead of seams. Of the subsequent improvement in the engine, the text has sufficiently spoken.

It would be a very interesting paper that traced the history of great fires in our own and foreign countries. What extraordinary statistics of ruin, death, misery, and devastation! Our friend has referred to several instances, but what are they? The frightful losses that have thus been sustained, who can chronicle?

Professor Olmstead, of Yale College, we have learned, has collected together many interesting materials upon this head, in the design, perhaps, of contributing a volume to the press. The facts and inferences may have much practical value. We regret our inability to communicate with the Professor, who might have furnished some interesting hints for our note.

It would not be difficult to determine with some degree of accuracy the annual losses which are sustained in the United States by fires, and the whole expenses of the Fire Department. In many of the cities records are kept. The books of Insurance Companies will show how much they are called upon to pay, and some estimate may be made of the ratio of insured and uninsured. Statistics of this sort would be of great value to our Insurance Companies, and we marvel that some one has not collected and arranged them in a permanent form.

Having fallen into something like this train of thought, it occurred to us that an hour or two might be spent, not unprofitably, in calling to mind some of these noted catastrophes which have befallen mankind. Of course it would require volumes to go back very far.

The great fire of London comes in first, and has furnished Mr. Ainsworth the groundwork of an interesting romance. Much of mystery hangs over it. Houses, towers, palaces, and temples were reduced to ashes at a blast. Two-thirds of the capital of Europe lay smouldering! 200,000 inhabitants fled to the fields to make their beds or collect their scattered and miserable rags!

However, we must be satisfied with a glance at the losses of the past fifteen or twenty years, for these are more within memory. They show that even yet; with all our art and science, the despotic reign of fire has not been checked, but mocks and baffles the impotent efforts of man.

In the memory of almost every reader, are many terrible conflagrations. We shall introduce some of the more notable of those which have occurred since 1833 in our own country and abroad, taking no notice of the thousands of minor losses.

In 1833, two tremendous and unparalleled fires swept over Constantinople within a week of each other, destroying, the one 2,500, and the other 850 houses!

In 1835, a great fire destroyed 50 or 60 houses in Charleston, S.C., and the famous OLD CHURCH OF ST. PHILIP, consecrated by so many memories of olden time.

In 1835, 15th December, the memorable 15th—a little spark performed its mission, and FIFTY-TWO ACRES, closely and compactly built, of GREAT AND TOWERING HOUSES and stores were swept away in NEW YORK—648 buildings! Who will forget the dismay and ruin—EIGHTEEN MILLIONS OF DOLLARS in a few hours—the earn-

ings of years of toil and enterprise are gone for ever, and beggars created by thousands!

But we have no time for these reflections. With some pains and labor we have collected together the chief fires that occurred between the years 1836, and Sept. 1846, ten years. Such of them where the loss is under \$50,000 we omit; and it is probable many have escaped our observation, we mean in our own country, for it is to this we particularly confine ourself, where the loss has been greatly more.

STATISTICS OF FIRES.

1836.—Bowery Theatre, New York, burnt; loss	\$100,000	
" Fire in Quebec, 16 buildings	300,000	
" TEA WAREHOUSES, LONDON	1,800,000	
" Washington Post-Office, Patent Office; all models, &c.; loss not given—at least, we suppose	500,000	
" All fires in Boston together this year	151,000	
" St. John's, New Brunswick, 150 buildings; loss not given; could not have been less than \$2,000 the building	300,000	
" London, all fires this year	2,400,000	
1837.—Bowery Theatre, N. Y., third time	75,000	
1838.—CHARLESTON ONE-THIRD DESTROYED, 1,200 houses; insurance companies break	4,000,000	
" Nantucket	150,000	
" Hudson, N. Y.	200,000	
" Boston, 1829	128 fires	\$112,000
" 1830	85 "	58,000
" 1831	51 "	34,000
" 1832	133 "	54,000
" 1833	144 "	94,000
" 1834	103 "	38,000
" 1835	155 "	200,000
" 1836	208 "	151,000
" 1837	136 "	167,000
<hr/>		
" 9 years.	1,143 "	900,000 900,000
Insurance effected		\$470,000
1838.—Mobile, 100,000		100,000
1839.—Port Gibson, Miss., \$300,000; Eastport, Maine, half the property of town, \$24,000; Cincinnati, \$40,000; St. Johns, N. B., \$800,000; St. Louis, extensive fire, say \$100,000; New York, theatres, churches, &c., \$400,000; Natchez, \$70,000; PHILADELPHIA FIRE, \$1,500,000; New York, \$1,000,000; Aiken, S. C., \$80,000; MOBILE, awful fire, 500 BUILDINGS; loss of property not given; we estimate \$1,000,000; another, 11 squares, \$120,000		5,424,000
" CONSTANTINOPLE, 5,000 HOUSES		23,000,000
" Prussia, \$500,000; Quibdo, on Spanish main, merchandise alone \$1,000,000—other property perhaps \$500,000 more; Chicago, 19 buildings, value perhaps \$80,000; Newton, N. Y., \$70,000		2,150,000
" In the month of October, this year, there were no less than 24 fires, and \$1,000,000 property destroyed in the United States!		
1840.—New York, \$500,000; Yazoo, Mississippi, half the town burnt—loss not stated, must have been at least \$300,000; steamer Lexington, 200 lives lost on the Sound; New York, \$1,000,000; Wilmington, N. C., ONE-THIRD OF THE TOWN, 500 buildings, \$500,000; New Orleans, St. Louis Exchange and other property, over \$2,000,000; Louisville, Ky., \$300,000; New Orleans, \$300,000; Penn Yan, N. Y., \$80,000; Louisville, several fires, \$70,000		5,050,000
" Salenchez, Switzerl'd, 250 houses, all but four on fire; 100 lives lost		1,000,000
" San Fernando, Cuba, ENTIRELY DESTROYED, estimated		1,000,000
Total		48,600,000

Brought forward.....	\$48,600,000
1841. New York, \$355,000; Georgetown, S. C., \$500,000; New York, \$200,000; St. Johns, N. B., vessels and buildings, \$1,200,000; Parisburg, ENTIRELY DESTROYED, say \$500,000.....	2,755,000
" TOWER OF LONDON BURNT, built by James II., 300,000 stand of arms in it; value unknown, suppose.....	3,000,000
" ONE-THIRD OF SMYRNA DESTROYED—10,000 houses, 40 persons killed, 20,000 destitute; loss unknown, suppose.....	6,000,000
1842.—Baton Rouge, La., \$100,000; Detroit, Michigan, \$150,000.....	250,000
" In the four years preceding this, there were in London 2,464 fires, 300 being by bad fire-places, 386 by candles.	
" New York, 40 or 50 houses, unknown, suppose \$500,000; Columbia, S. C., \$200,000; Norwich, Conn., \$100,000; Boston, year to 1st Sept., \$93,000; Philadelphia, year to 1st June, \$362,000, 189 alarms in all; American theatre, New Orleans, loss not known, say \$100,000; Richmond, \$800,000; Morrisville, Indiana, town nearly destroyed, say \$200,000; New York, \$250,000.....	1,885,000
" HAMBURG, GERMANY, FOUR DAYS' FIRE—61 streets, 120 lanes, 1,992 houses, 498 small houses, 468 cellars, 3 churches, 300,000 volumes, 4,000 machine models; fire seen 100 miles; total loss estimated over.....	30,000,000
" Koseger, Germany, 179 houses, unknown, suppose.....	1,000,000
" Kamenz, Germany, nearly destroyed, suppose.....	500,000
" Liverpool, great warehouse.....	2,700,000
" Rheinback, Germany, half destroyed, suppose.....	500,000
1843.—Newbern, N. C., \$100,000; Tallahassee, Fla., \$500,000, EVERY STORE AND SHOP; Fall River, \$400,000; Valparaiso, Chili, \$915,000; Baltimore, whole year, 153 fires, say \$100,000; Boston, whole year, \$140,000.....	2,155,000
" Mimordia, France, town destroyed, suppose.....	600,000
" Kingston, Jamaica, 1,340 HOUSES, besides out-houses; loss not stated, must be at least.....	2,000,000
1844.—New Orleans cotton press and cotton.....	700,000
" Canton, China, 1,500 HOUSES; loss not stated, must be.....	5,000,000
" Resched, Persia, DESTROYED.....	2,500,000
" New York, whole year to 1st Aug., \$78,000 in buildings, \$173,000 in furniture, &c.; in 1843, it was \$72,000 by first and \$173,000 by last.....	500,000
" Guadalupe.....	1,000,000
" Ship and cargo, New Orleans.....	120,000
1845.—GREAT PITTSBURGH FIRE—22 squares, 1,000 houses, a mile of surface, one-third of city, 56 acres of buildings.....	3,479,950
" Pittsburgh, 30 to 40 buildings }.....	500,000
" New York, 100 buildings }	
" QUEBEC, GREAT FIRE—1,630 houses, 46 human beings destroyed..	
" St. Johns, N. B.....	300,000
" Matanzas, Cuba.....	1,200,000
" Fayetteville, N. C. IN RUINS.....	500,000
" Quebec, ANOTHER GREAT FIRE TWO MONTHS after last, 2,000 houses; losses by both fires.....	8,000,000
" New London, Conn., \$500,000; Barbadoes, W. I., \$2,000,000.....	2,500,000
" GREAT FIRE IN NEW YORK, 546 buildings.....	6,000,000
" New York, \$100,000.....	100,000
" ANOTHER GREAT FIRE IN SMYRNA—one mile and a half of the town destroyed; loss, estimate.....	2,000,000
" Canton, China, 1,259 PERSONS DESTROYED by the burning of theatre.	
" Bordeaux, France, in Brandy.....	600,000
1846.—Theatre, Quebec, 50 lives; La Prairie, Canada, \$250,000.....	250,000
In three months, 1845, the losses in U. S. by fire were \$15,000,000!	

Total in 10 years.....\$137,362,950

Thus, from an imperfect view of a period of ten years, hurriedly collected, and taken only from important points, regardless of

thousands of minor losses, we have *one hundred and thirty millions of dollars* in property and effects, committed to the devouring element. But this cannot be supposed more than half the truth, considering Europe, Asia, and America, throughout all this period, and taking into account the smaller losses, and that immense class of losses not noticed at all in our calculations, viz.: those which grow out of the interruption of trade, etc., etc. We have, then, in a fair estimate, \$275,000,000. *Two hundred and seventy-five millions of dollars* lost to the world from 1836 to 1846, by the ravages of fire alone—an average of \$27,000,000 a year! sufficient to pay all the expenses of the American government in the same time; equal to the whole foreign commerce of the United States for one year; one fifth of the whole annual product of the United States in agriculture, manufactures and commerce; more than our whole banking capital from Maine to Louisiana; sufficient to purchase the absolute necessities of life one year for all the inhabitants of the Union; double the cost of all the railroads in our country; greatly more than the total of all State indebtedness! Who shall limit the ravages of this amazing influence?

It will be observed of the catalogue of fires before given, that \$37,000,000 of loss occurred in our country, being an average of \$3,700,000 a year, which might be considered a fair average calculation annually for every period of ten years. Now, when it is considered, as before remarked, what numerous losses, direct and indirect, have not been chronicled by us; to which, were the whole expense of the fire department added, and all expenses of engines and machinery, and police, the average loss by fire during the last ten years will not be rated lower than \$8,000,000 or \$9,000,000 annually, and the average losses for years to come not less than \$5,000,000 or \$6,000,000, an amount sufficient to carry on the railroad proposed from Lake Michigan to the Pacific ocean, as fast as labor could urge it!

In the tables we have given it must be regarded extraordinary that great fires have, as it were, a contagious character, and occur at times almost simultaneously in different parts of the country, and often in the same place. Thus, we have two vast conflagrations in 1833 in Constantinople; two great fires in 1839 in Mobile, within a few days of each other; \$9,000,000 of loss in the single month of October, 1839, in different parts of the Union; two enormous fires in Quebec, 1845, almost the same month, and in three months, in the United States, in 1845, upward of 13 or 14 millions of dollars destroyed! In cities, too, certain districts appear to be fated. We have known a square burnt three times to the ground in four or five years. Doubtless these are not all remarkable coincidences and inscrutable providences. The hand of man is not always idle!

The great fire of London is said to have been predicted long before by zealots and soothsaying enthusiasts, and occurred almost in the terms of the prediction.

But this interesting subject we must leave to the reader. It is capable of great extension, and we should be pleased if some one would resume it in our pages. For example, could we have the statistics of losses by fire since the Revolution, or in the history of our

great cities, the loss of life, etc., how interesting and valuable this may be, and then the results of Insurance Companies, the losses and profits, the fire department, the fires at sea and by lightning—what a wide subject is there here.*

Art. V.—DIRECT TRADE OF SOUTHERN STATES WITH EUROPE.

No. II†.

FOREIGN COMMERCE—OUR SOUTHERN CITIES—REVIVING ENTERPRISE AND PROSPERITY—RICHMOND, CHARLESTON, MOBILE, SAVANNAH, AND NEW ORLEANS. POSITION OF THE SOUTH—HER DUTIES, HEALTH, AND ENTERPRISE. SOUTHERN LATITUDES—SLAVERY AND THE RIGHTS OF SLAVE STATES—COMMERCIAL DEPARTMENT IN UNIVERSITIES—SOUTHERN COMMERCIAL CONVENTIONS.

THAT the Southern and South-western States have not had their due weight in conducting the FOREIGN TRADE of the Union, has long been matter of complaint. There was a period when this could not be alleged with any show of truth; why this period has been allowed to pass it would be difficult to determine. We have all the material of export, and what the whole world must want; we have wealth and capital, and it would be hard to show a want of energy when a proper field is presented. Our timber for ship-building is unrivaled; with all of this, however, we have been tributary to other sections, and content with the character only of a great agricultural people.

Let us take Richmond, Charleston, Savannah, Mobile, and New Orleans. Their annual exportation of agricultural products is immense; it is conducted in Northern shipping, and the return cargoes received at Northern ports to be re-shipped again with great expense to us, who sit patiently awaiting the result. The city of New York will import six-fold more than all of our Southern States‡ taken together, and to a great part for the consumption of the Southern and Western States. All the profits of this commerce, legitimately ours, are lost.

Is this natural or necessary? Are there not means within reach to

* FIRES IN BOSTON, SEA AND LAND.—From Shattuck's admirable "Census:—"

Years.	Marine Risks ins.	Fire Risks ins.	Marine Losses.	Fire Losses.	Alarms	Prop. destr'd.	Insured.
1840	38,278,737	49,839,951	1,441,844	375,144	113	77,973	58,632
1841	39,145,131	50,268,858	992,539	105,324	140	102,972	36,920
1842	32,091,673	46,605,789	875,613	117,140	190	90,008	44,536
1843	34,793,990	42,395,538	695,492	160,288	232	128,666	90,083
1844	33,134,356	42,376,155	592,874	98,663	267	184,083	95,352
1845	36,755,845	53,940,539	1,071,153	326,193	223	231,191	172,840

† See Commercial Review, June, 1847.

‡ As, for example, in 1836, her imports being \$118,253,416; Virginia, \$1,106,814; S. Carolina, \$2,801,361; Georgia, \$573,222; Alabama, \$651,618; Louisiana, \$15,117,649, or all Southern States, \$20,250,664. In 1845, New York, \$70,909,085; all Southern States together, \$11,407,817, or nearly seven to one in favor of New York!

concentrate among us some portion at least of the wealth derived from foreign commerce? Would it not employ our population, enlarge our cities, and strengthen our institutions?

Southern education has indeed been faulty in many respects, and in none more than this, that it has done nothing for the merchant classes; indeed, it is but lately that these have been elevated to their true position. It is within our short recollection when something disreputable was attached at the South to the trade of merchandising. It would not suit the better order of families or their sons; the merchant class was an inferior one! What could be hoped from such a state of public opinion? *But that day has passed.* We are acquainted with young men of the first influence in South Carolina, who are now to be found in the counting-room. Men of refinement, of education and worth, many of whom we fondly remember as fellow-students in college days. We rejoice in these things, and trust that the noble example will have many followers. It is thus that merchants must be made and advanced.

It is impossible not to observe the great evidences of improvement at the present moment in Southern cities. Charleston and Savannah have never been more flourishing; we hear of manufacturing establishments, of steam-ships to Havana, of railroads intersecting all parts of the State, to the mountains and to the fruitful Western valleys. It would seem as if a spell had been broken, as if the seal of the casket were ruptured, which, in the Arabic tale, liberated the cramped proportions of a giant.

See, too, it is found that we may approach the Pacific shore over Southern territory—that a great railroad may throw in a few days, and by a route comparatively easy, the commerce of the Indies into our laps. Whenever was there a region more favored?

We talk of a line of steam-ships to Europe; Charleston would be an admirable point for such a line, and were her energies properly directed it would be admirably sustained. A similar line, it is said, will be soon established from New Orleans, in a great measure through the enterprise of our fellow-citizen, A. Gordon, Esq., now in Europe, in connection with the design.

Some years ago the South evinced for a short time the deepest interest in foreign commerce; several great conventions were held, with the largest delegations. We had the ablest speeches ever delivered in the country; the most profound and elaborate reports; the best RESOLUTIONS in the world. But what has become of all this? Have we gained the foreign trade? Do we appear any nearer the desired consummation? Are we working out the great end? Alas, little of the kind; we have almost forgotten the conventions. But they shall not be forgotten—we will invoke as it were their dread ghosts, to stare even our hardihood out of countenance. We cannot say, shake not those gory locks at us. The guilt is ours, and in acknowledging it let us be penitent and sin no more.

Men tell us that the Southern States can never become the centre of great commercial operations. We heard this asserted boldly a thousand times over, during our travels at the North. The climate is uncongenial, say they—produce corrupts in your summers—you have no energy in such hot regions—slavery retards you; make

your cotton, your sugar, your rice, and tobacco as much as you please, but there is an end of it, and will ever be.

We are tired of refuting objections, which have even been tolerated at the South itself. The city of Charleston is as healthy all the year as any city in the world—perhaps the healthiest city. The statistics of New Orleans mortality, excluding the present season, are lower than those of New York. Even including it and taking into account the class of population who have died, New Orleans will not compare disadvantageously.

We are satisfied that there are many portions of the South which would show as low mortality for all ages below ninety, and less above that age, than any portion of the North, if the population could be confined to those localities for one hundred years. Charleston and New Orleans are often cited as instances of sickly places abounding in centenarians, but we shall give good reasons farther on for the opinion, that these cities, to their native or acclimated inhabitants, are, perhaps, the healthiest in the United States.

Though occasionally cases of severe bilious fevers may occur in southern seaports, most of which are contracted out of town, *epidemics* of bilious or congestive fevers are wholly unknown. The highest number of deaths, in Charleston during any one year for the last eighteen, from *all* fevers except yellow fever, is eighty-one, and the aggregate for this whole period is but six hundred and fifty-six,—a result which will much astonish those writers who are not familiar with southern statistics. These facts illustrate very clearly the peculiarity of *city climates* and diseases. If the population of Charleston, for example, which has varied little from thirty thousand for the last eighteen years, had been living in the country *around* the city, or scattered through the bilious fever region of the South, no one can estimate within one thousand of the number of deaths which would have occurred during this long series of years.

The statistics of Charleston show a lower mortality among its *acclimated population* than any northern city, and the physicians of Mobile and New Orleans will give the same testimony in favor of these cities. Mobile and New Orleans, too, possess the great advantage over the former city, of being surrounded by healthy country. When these cities escape yellow fever, which attacks the unacclimated alone, they enjoy an exemption from all disease which is almost incredible.*

Complain of produce and costly goods corrupting or deteriorating in Southern climes! Venice, a southern city, conducted the trade of all the East, and was the entrepot of the world's commerce for the main period of her history!

And then that Southerners naturally are luxurious and want energy. They may be so now to an extent, and for adequate causes; but not necessarily. Has the South ever been backward in contributing her quota of great minds, and working minds, in every department of our country, in peace or in war? Antiquity refutes the libel that Southern latitudes are not fitted for extensive commerce. The empires of Assyria, Egypt, Media, Persia and Arabia, were southern. All civilization comes from the South—the Greeks and Romans were Southerners. We have spoken of Venice, a southern city. Were not all the southern Indian tribes on the discovery of America, more advanced in civilization than the northern—Mexicans, Peruvians, Natchez, &c.? Time was when the North was looked to for *nothing*, shall it now be looked to for *everything*?

Nor let us be misunderstood; we have the broadest notions of our country; we cherish Maine and Louisiana as sisters; we have no jealousies of the North; we love its extraordinary energies and advancement; we have rejoiced in the progress of its States in

* Commercial Review, Vol. III., No. 5, pp. 364, 366, 367.

wealth, enterprise, population, intelligence and resources; they constitute great communities. But let us imitate as well as admire; let us not forget ourselves, our rights and duties. It is time that the South *should* be understood correctly, and aspersions forever silenced. The GREAT SOUTH deserves as much of our panegyric as the great West or North. The giant progress of this nation cannot and will not be confined to localities.

Nor do our Northern brethren understand us upon that vital question of slavery. They have allowed us to be visited with sneers, jeers, abuse, misrepresentations of the most malignant stamp, in a matter with which no one but ourselves and our Maker, by any law of man or of nations, can have a rightful concern. Our national councils have been perplexed, our progress stayed and measures threatened, equivalent as we the people of thirteen independent States regard to annihilation, as an integral part of this Union. We are abused for calculating the value of a union which threatens us with utter desolation and ruin. We are called fanatical, inconsiderate, disorderly, factious, when protesting and crying out against such unhallowed invasions upon the rights and even the existences of freemen. It is possible our sensitiveness is great—it is right that it is so. Are men to “snuff the approaches of danger in the tainted breeze,” and not avert it? God knows if let alone we can co-operate with our Northern brethren, can give them of our labor and take of theirs; we can ply the shoulder with them, love them, live with them—but *it must be as equals!* Let us alone, as we let you alone, and as you let European nations alone, and the destinies of our country will be great indeed. An opposite course is too sad to contemplate. It is sufficient that we, who are the best judges, are satisfied with our institutions as they are, and will change or alter them just as soon as we regard it desirable. On our head be all the responsibility!

It becomes the South, however, to increase its strength and weight in this Union, construct its railroads, extend its commerce, build up its manufactures, protect its arts, endow its universities and colleges, provide its schools, and prepare, however the case may be, for whatever God has in store in that future, through which, to such a bad pass have matters come, no man can clearly see a single year. The madness or imbecility has not yet come upon us, with which, it is said the gods afflict those whom they design to destroy.

But to be done with this, we invoke the South to awake. Two months ago we prepared, with much pains, a paper showing the importance of *educating Southern merchants*. We proposed a professorship of COMMERCE and STATISTICS in the new University of New Orleans. The reader may refer to that paper. Nor have we finished the subject, nor shall we finish, until the great and desired consummation is attained, and one great step taken in advancing the position of the South-west. In another page of this Review we resume this commercial professorship.

The remainder of our space shall be occupied with the Southern Conventions, noticed at the opening of this article. We have already adverted to the one held in Charleston in 1839, and introduced its resolutions. At the present time we will examine the one of a previous year at Augusta, Georgia. They deserve to be held in

memory. Their papers are worthy of preservation. Shall it not indeed happen now, that while there is a Memphis and a Chicago Convention, to promote the home or domestic trade of the South and West, one equal in respectability and importance shall be held, say at New Orleans, to consider the great question of our FOREIGN TRADE with the rest of the world, and the means of promoting it? We dislike political conventions; but these are unobjectionable.

To the subject. The Augusta Convention consisted of the following delegates:

From South Carolina.—George M'Duffie, W. W. Starke, James Adger, Ker Boyce, R. W. Fort, William Barnwell, J. Cuthbert, S. G. Barkley, Edward Delius, L. Bowie, J. L. Pearson, Andrew Wallace, J. Wright, Alexander Young, David Alexander, James Gadsden, Arthur P. Hayne, Alexander Black, Whitfield Brooks, R. C. Allen.

From Georgia.—William Dearing, Burwell Pope, W. L. Mitchell, H. A. Fraser, Wm. Brown, John H. Howard, Thomas Hoxey, Thomas F. Foster, Seaborn Jones, Wm. P. Yonge, Thomas Preston, jr., D. A. Gaillard, J. T. Rowland, A. H. Chappell, J. A. Cuthbert, A. H. Kenan, R. K. Hines, N. G. Foster, W. A. Shields, A. J. White, Edward Birdsong, Wm. A. Cobb, J. W. M. Berrien, P. B. Connelly, D. E. Bothwell, J. W. Bothwell, Thos. Butler King, Joseph Cumming, John Cumming, S. B. Parkman, B. E. Stiles, D. L. Adams, Thomas D. Rice, Pearse O'Leary, James L. Baker, John Phinizy, Samuel Hale, Wm. W. Holt, Peter Bennoch, James Harper, John Bones, John Kerr, Adam Johnston, C. J. Jenkins, H. H. Cumming, G. W. Crawford, B. H. Warren, R. F. Poe, J. M. Adams, E. B. Beall, W. M. d'Antignac, D. W. St. John, F. M. Robertson, Paul Fitzsimons, A. J. Miller, E. Hamilton, Lancelot Johnston, W. F. Van Lamingham, J. E. J. Horne, Jas. W. Lathrop.

The Hon. Ker Boyce was appointed president. Gen. McDuffie, from a select committee, made a report. He adverted to the fiscal derangement of the country, to the depression of the staple-growing States, the decline of trade, and low estimation of commercial character. He referred to the advantages of the Southern States for commerce, lower rents, lower freights from Europe (since vessels must come to us, if they come in ballast), the presence of all exporting commodities, and demand for those of importation. We make one extract from the paper:

The avocation of the merchant requires as much character and talents, and is of as much dignity and usefulness, as any other pursuit or profession, and the senseless prejudice which would assign to it an inferior rank, has been blindly borrowed from those ancient republics and modern despotisms, whose policy it was to regard war as the only honorable pursuit. As agricultural productions, which find their market principally in foreign countries, constitute the almost exclusive sources of our wealth, the mercantile class is as indispensable to our prosperity as the agricultural. Their interests are inseparably identified, and whatever affects the prosperity of one, must have a corresponding influence on the other. How much, then, does the general welfare of the staple growing States depend upon diverting into the pursuits of commerce a large portion of the capital, the character, and the talent which have been hitherto directed too exclusively to agriculture and the learned professions? It is the deliberate opinion of the committee, that no one change could be made in our pursuits that would so largely contribute to the public prosperity, and that those public-spirited citizens who shall take the lead in this new career of useful enterprise, will deserve to be regarded as public benefactors.

Mr. Jones offered this resolution:

Resolved, That it is a sacred duty which the citizens of the Southern and South-western States owe to themselves, their posterity, and their country, to give a decided preference, (where the terms are equal,) in procuring their supplies, to our merchants who carry on a direct trade with foreign nations.

Mr. Jenkins proposed this :

Resolved, That as an introduction to a direct importing system at the South, it is indispensably necessary that the crop of the present year should be directly exported by Southern merchants and planters, and that to effect this object, the Southern banking institutions should lend such aid as they safely and conveniently can.

Mr. McDuffie moved for the appointment of a committee to prepare an address to the people of the South-west, of which, we believe, he was the chairman, and performed the duties. As this is a valuable paper, we shall now introduce it, and continue in subsequent numbers the subject of SOUTHERN FOREIGN COMMERCE. With the political doctrines of the paper, of course, we have nothing to do.

Of the numerous subjects deeply and intimately connected with your permanent prosperity and happiness, which have, during the last fifteen years demanded of you all the consideration which your intelligence could bestow, and all exertions your patriotism could contribute, none have come more directly "home to your business and your bosoms," than that upon which we now propose to address you.

The struggle in which you were so long engaged, in relieving your commerce from the burdens imposed upon it by partial legislation, has been terminated by a compromise, which, if finally carried out in the liberal and magnanimous spirit in which it was conceived, cannot fail to perpetuate the political harmony which it was the means of restoring. But it is not to be disguised, that the system of high protecting duties, falling mainly upon the productions of the exporting States, combined with the system of federal disbursement, which expended the revenue resulting from those duties almost exclusively in the Northern States, has converted the slight superiority originally possessed by the northern cities, in the business of foreign importations, into an overwhelming preponderance, and diverted almost the whole of the immense commerce of the Southern and South-western States into artificial, circuitous, and unnatural channels. In the commercial relations of extensive and wealthy communities, it was to have been expected that effects would for some time survive their causes ; and accordingly that portion of the commerce of the United States which is appropriately *our own*, consisting of an exchange of our agricultural productions for the manufactures of foreign countries, is still carried on principally through northern cities, by the agency of northern merchants, who levy a transit duty—voluntarily paid, to be sure, but utterly incompatible with a just and enlightened view of our own interests.

Now that the system of compulsory tribute is greatly reduced, and rapidly coming to a close, we are called upon, by every consideration of enlightened self-interest, to signalize our complete commercial emancipation, by throwing off this system of voluntary tribute, which can continue only by our consent and co-operation.

A candid and dispassionate survey of the actual condition of our foreign commerce, as compared with our great natural advantages, will demonstrate that to bring about this consummation, "so devoutly

to be wished," by every patriotic citizen of the Southern and South-western States, nothing more is necessary than a resolution on our part to accomplish it. To will is to do it.

A brief analysis of our foreign commerce will now be presented. Taking the imports and exports of the United States for the fiscal year 1836, as a criterion, we have the following extraordinary statistical phenomena :

The imports of the whole of the United States, amounted, in round numbers, to \$190,000,000. Those of New York alone amounted to \$118,000,000, while those of all the Atlantic States south of the Potomac, and the States on the Gulf of Mexico, amounted to only \$20,000,000, and those of South Carolina and Georgia to only \$3,400,000. During the same year the domestic exports of the United States amounted to \$107,000,000, of which New York exported only \$19,800,000, against an import of 118,000,000, while the States South and South-west of the Potomac, exported 78 millions against an import of only \$20,000,000, and South Carolina and Georgia, each having a commercial seaport, with a safe harbor on the Atlantic, exported \$24,000,000 against an import of only \$3,400,000 ! The contrasts here exhibited are absolutely astounding, and it is confidently believed they are without any parallel in the history of independent States. New York, it will be perceived, imported six times the amount of her exports, while the Southern and South-western States imported little more than one-fourth of the amount of theirs, and South Carolina and Georgia imported less than one-seventh part of the value of theirs. The case of these two States furnishes the fairest criterion for determining the degree of that ruinous disparity which exists between the exports and imports of the States which produce the greatest agricultural staples, which are almost the sole foundation of the foreign commerce of the whole Union.

New Orleans, from its geographical position, imports West India productions for the Valley of the Mississippi, and specie from Mexico for the United States generally—articles which are not obtained in exchange for the staples of the South-western States, and form no part of the commerce by which those staples are exchanged for foreign productions. If only that part of the imports of New Orleans, which is obtained from abroad in exchange for cotton, were taken into the estimate, the aggregate imports of all the staple-growing States, like those of South Carolina and Georgia, would no doubt sink down to less than one-seventh part of their exports.

Such being the actual state of our foreign commerce, it deeply concerns our welfare to inquire, in the first place, whether it is a sound and natural condition of this great interest ? and if it be not, what are our available means of placing it in a natural and healthful condition ?

That it is neither a natural nor a salutary condition, will be apparent from a few obvious considerations. Viewing the subject as one strictly of political economy—and in that light only are we now considering it—New York, Pennsylvania, and Massachusetts are, for all such purposes, to be regarded by the staple States as foreign communities ; not less so than Great Britain and France. The bonds of our political Union, as confederated States, however they may bear

upon other aspects of the subject, have no bearing whatever upon the question of national wealth as it relates to the several States. The federal constitution, giving it the utmost amplitude of construction, cannot annihilate the intervening distance of a thousand miles; nor has it annihilated the separate and independent organization of the States. We cannot, therefore, regard the wealth of New York or Pennsylvania as the wealth of South Carolina or Georgia, or as contributing towards it, upon any other principle than that mutual dependence happily existing between commercial communities, which makes the prosperity of the one conducive to that of the other, in proportion to the extent of the exchanges of their respective productions. Every cotton planter must have perceived, that the price of his staple depends more upon a prosperous condition of the trade of Manchester, than upon that of all the cities of the United States, north of the Potomac. And, however it may shock the nerves of that false and mistaken philanthropy which sometimes assumes the guise of patriotism, we must be excused for "*confessing*" the homely virtue of preferring the prosperity of our own respective communities, though derived from a direct trade with foreign countries, to that of our northern confederates, derived from the same sources, but at our expense.*

Applying these plain and obvious principles to the existing state of our commercial relations, it is apparent that the profit made by the merchants of New York and other northern cities, upon the exchange of our staples for foreign merchandise, is as effectually abstracted from the wealth of the staple-growing States, as if those cities belonged to a foreign jurisdiction. We are very far from complaining of our fellow-citizens of the North for reaping the golden harvest which circumstances presented to their enterprise. They deserve commendation rather than complaint. Our purpose is to stimulate the enterprise of our own merchants; to recover, by a fair and equal competition, the advantages they have lost; and to invoke the patronage of our fellow-citizens generally, to sustain them in such a competition, and *such* a competition only. We should ourselves furnish an example of that mock patriotism of which we have spoken, and which is too often used to disguise a selfish purpose, if we were to advise our fellow-citizens to purchase from our own importing merchants, when better bargains could be obtained from our northern competitors. We only ~~ask~~ a decided preference when the terms are equal, and shall endeavor to show in due time, that such terms can be afforded, with a liberal profit to our importers.

We propose now to exhibit a rough estimate of the ANNUAL LOSS OF THE EXPORTING STATES BY THE INDIRECT COURSE OF THEIR FOREIGN TRADE; or, more accurately speaking, of the annual addition that would be made to their wealth, by the establishment of a direct export and import trade with foreign countries.

The excess of the exports of the Southern and South-western States beyond their imports was, in 1836, sixty millions of dollars. As the value of our imports always exceeds that of our exports, even when our importations are not excessive, by an amount equal to the

* Mr. McDuffie is here assuming the extreme doctrines of free trade and State independence.

increased value of our exports in foreign markets, beyond our custom-house assessment, and the estimated cost of importing the merchandise obtained in exchange for them, it may be safely assumed, that the northern cities imported in the year above stated seventy-two millions of foreign merchandise, which was purchased by the staples of Southern and South-western States, and fairly constituted a part of their foreign commerce. Estimating at 45 per cent. the profits of the northern merchants, and all the expenses and risks incident to the transshipments and transfers of an indirect instead of a direct route to the seaports of the Southern and South-western States, it follows that the people of these States sustained a loss of \$10,800,000 in that year, by the indirect course of their foreign commerce. By the same process of reasoning, we reach the conclusion that Georgia and South Carolina sustained a loss, in the same year, of \$3,000,000. In coming to this result, however, it is assumed that foreign merchandise can be imported as cheaply into our Southern Atlantic cities, as into the cities of the North. This assumption, however contrary to preconceived opinions, is believed to rest upon the solid foundation of undeniable facts. A great deal is habitually said about the natural advantages of New York as an importing city; and these are taken for granted, without reflection, from the mere fact of her great commercial prosperity. But what are these natural advantages?

She is, no doubt, from her position, the natural emporium of the foreign commerce of most of the New England and middle States, and by her magnificent canal, she will continue to command the trade of the North-western States, until an equally or more magnificent channel of internal commerce shall supply the whole Valley of the Mississippi with foreign merchandise, by a shorter and cheaper route, through the seaports of the South. But the question still recurs, where are her natural advantages over the cities of the South, or the Atlantic, or the Gulf of Mexico, for carrying on the foreign commerce of the staple-growing States? Does the Atlantic present a smoother surface or safer navigation between Liverpool and New York, than it does between Liverpool and Charleston or Savannah? Do merchant vessels enter the harbor of New York under more propitious gales, or ride in it with more safety, than in the harbor of Charleston? These questions are conclusively answered in the negative, by the fact, known to every merchant who is practically acquainted with the subject, that freights from Liverpool to Charleston or Savannah, are actually lower than from Liverpool to New York. This is one of the natural incidents of a direct trade. Vessels coming from Europe for cotton, would of course prefer bringing merchandise to a great cotton market, where a direct exchange could be effected, than to a city a thousand miles distant from the market, involving the necessity of a coastwise voyage, in addition to that across the Atlantic. If, then, merchandise can be transported from Liverpool to Charleston or Savannah, cheaper than to New York, what other element in the cost of importation turns the scale in favor of New York? Are house rents and the general expenses of living lower in New York than in Charleston or Savannah? House rent is notoriously much higher in New York than in any of our southern seaports; and if the concurrent testimony of travelers is to be cred-

ited, the expenses of living there, and every species of common labor, are greatly beyond what they are in Charleston or Savannah. It is thus that the alleged natural advantages of New York, so far as relates to the trade of the South, vanish, when exposed to the test of scrutiny, and resolve themselves into the mere beauties of a magnificent harbor.

But we not only deny the alleged natural advantages of the northern over the southern Atlantic cities, for carrying on the exporting and importing business of the staple-growing States, but we assert that the natural advantages are incontestably on the side of our own seaports. What is the commerce in question, divested of the factitious appendages of an artificial system, but simply an annual exchange of cotton and other staples, to the amount of some eighty millions of dollars, for merchandise imported from England, France and other foreign countries? It is perfectly plain, therefore, that the more simple and direct the operation, the less complicated, involved and mystified, the cheaper will the foreign manufacturer obtain the cotton, and the American cotton planter the merchandise for which it is exchanged.

The foreign manufacturers, and the American planters, are equally interested in establishing this system of direct exchange; and it can only be effected by bringing the foreign manufactures directly to the cities of the cotton-growing States, and making these, instead of New York, the great marts for vending foreign manufactures on the one hand, and the raw material on the other. Considering the obvious economy of this direct system of exchanges, it seems strange that the foreign manufacturers have not established their agencies, both for selling goods and purchasing cotton, in those cities in preference to others. Cotton can certainly be obtained cheaper in New Orleans, Mobile, Savannah, and Charleston, than in any northern city; and manufactures can as certainly be sold on better terms, for the consumption of the cotton-growing States, if they will bear the expenses, charges and risks of an indirect importation through New York. But no just estimate can be formed of the benefits of this proposed system, which does not embrace its tendency to supersede, not only the complex machinery of intermediate transfers and agencies, required in an indirect trade, but to a very great and salutary extent, the use and agency of money. Money is itself a very costly agent, and wherever a direct exchange of commodities, or in other words, barter, can be substituted for successive sales and purchases, the use of the sum of money that would have been required to effect these sales and purchases, is superseded by the direct exchange, and is just so much saved to the parties concerned.

In the extensive operations of foreign commerce, a very near approach can be made to this system of barter. Indeed, our great agricultural staple possesses a two-fold attribute. This is an invaluable article of consumption, and at the same time, while passing from the producer to the consumer, without any additional cost to society, it performs the functions of money, or bills of exchange. And in the disordered state of our foreign and domestic exchanges, and of our money currency, which threatens a long continuance, this inappreciable production of our favored soil and climate, promises to become a

still more important agent in the transactions of our commerce. Does not this, we confidently ask, give to the seaports of the cotton-growing States a most decided advantage over their competitors at the North? The cotton of the South and South-western States is the actual capital which sustains four-fifths of our foreign commerce. To that extent the credits obtained in Europe are obtained upon the faith of that capital alone. Shall the people of the South and South-west, with these palpable facts staring them in the face, any longer remain obnoxious to the reproach of owning and furnishing the capital of our foreign commerce, and yet permitting the people of distant communities to enjoy its golden profits? Every consideration, public and private, of patriotism and of interest, decidedly forbids it. A field of honorable competition and profitable industry is opened to our enterprise, where the public benefactor and the private trader, the patriot and the merchant, will be united in the same person. If the Medici of modern Italy, while they acquired incalculable wealth, added a princely lustre to their house, by embarking on such a field of enterprise, what citizen of our republican States would hesitate to blend, in the ensigns armorial of his family, the titles of patriot and merchant, when he is animated by the noble purpose of rescuing his country from a state of commercial dependence, as degrading to her character as it is injurious to her prosperity?

Every political community should endeavor to unite within itself, and have under its own control, as far as circumstances will permit, all the elements of national wealth. The wealth of the staple-growing States is derived almost exclusively from agricultural productions, which find their market principally in foreign countries. It is the demand of that market chiefly which gives them their value, and from that market we obtain most of the various commodities required for our consumption.

Foreign commerce, therefore, is an element of our wealth scarcely less essential than agriculture itself. Is it, then, compatible with that self-praised independence which should belong to every free State, to entrust the almost exclusive agency of conducting this great national interest to the citizens of other and distant States, who do not reside among us, and who so far from having any sympathies for us, constrain us to believe that many of them are deeply prejudiced against our civil institutions? We beg you, fellow-citizens, to give to this view of the subject that grave and deliberate consideration which it so obviously demands. We speak more from the records of our own sad experience than from the speculations of theory, when we express the opinion, that the commercial independence we are now seeking to establish is indispensable to the preservation of our political independence. Can it be believed that the enormous and oppressive impositions of the protective system would have been so long and patiently borne, if our own proper commerce had been carried on through our own cities, and by our own merchants? If these had exported our agricultural staples, and imported the manufactures for which they were exchanged, would a doubt ever have been entertained that the high duties imposed upon those manufactures, with an explicit view to their prohibition, was a burthen specifically laid upon the productions of our industry, taking just so much

from their value, compared with the value of the similar and rival productions of other countries? Would the people of the Southern and South-western States have submitted, in 1832, to the levy of 24 millions of federal revenue from sixty millions of their imports, to be carried off and disbursed in distant communities, making "our barrenness an inventory to particularize their abundance?"

Yet all this, and more, did we patiently endure for years; many of us, owing to the confusion of ideas resulting from the disjointed condition of our foreign commerce, doubting whether the burthen was not a benefit conferred upon us by a parental government. Let this fatal separation of our agriculture and our commerce, and the unnatural alliance which has been productive of such pernicious fruits, exist no longer. "It cannot come to good."

We ought never to forget, what we have too many painful proofs that others will not, that we are distinguished from our Northern confederates by peculiar domestic and civil institutions, which are inseparably identified with our great staple productions, and which we hold to be absolutely exempt from all foreign scrutiny or interference whatever. And however we may deprecate the event of a dismemberment of our confederacy, we cannot be blind to the existence of causes which make it one of the possible contingencies for which it is the part of wisdom to provide. In such an event, our foreign commerce, as now carried on, would be thrown into utter derangement. This commerce, as well as our agriculture, should be carried on by those who have an interest in the preservation of our institutions, and who, in case of a political convulsion, would seek no distant refuge or separate destiny.

Having now briefly shown the extent of our loss by the indirect course of our foreign trade, our great natural advantages for reclaiming that trade, and the strong motives by which we are invoked to enter upon the good work without faltering and without delay, we now propose to consider the obstacles, real or supposed, that stand in our way, and the means of overcoming them. The principal of these is the alleged want of capital. We have already shown that we have, in our great staples, the whole of the actual capital which sustains our foreign commerce. But this capital belongs to the planter, and the want of capital alluded to, is the money capital necessary to purchase the cotton, convert it into foreign goods, and distribute these to the retail merchants.

We are strongly inclined to the opinion that it is principally by the agency of credit, instead of money capital, and that credit resting upon our staples, that this branch of commerce has been hitherto carried on by northern merchants. So far as credit is to be used as an agent in conducting it—and we believe it is one of the most legitimate purposes of a well-regulated system of credit—it cannot be doubted that our own merchants have decided advantages over those of the North. They are nearer to the great fund by which that credit is to be ultimately redeemed, and can more easily avail themselves of the use of it. But to prevent misapprehension, we deem this the proper place to explain our views on the subject of credit, and the extent to which it can be safely and legitimately used as a cheap substitute for money.

Credit we regard as the legitimate offspring of commerce and free institutions, and a most active and salutary agent in the production of national and individual wealth. Far from being demoralizing in its tendency, it is pre-eminently the reverse, as it essentially implies mutual and extended confidence, founded upon general, known and established habits of honesty and punctuality. It can exist only in an atmosphere composed of such elements. But though we deem thus highly of credit, paradoxical as it may seem at the first view, we regard debt, in itself, as being very far from a benefit, and in the extent to which it is habitually carried in our country, a very great, and sometimes a demoralizing evil. That credit which is merely the correlative of indebtedness, is not the credit of which we have spoken. To illustrate our meaning, we could not select a case more strikingly appropriate than that of the foreign commerce now under discussion. We annually export, for example, to Europe, agricultural staples to the amount of eighty millions, and import merchandise to the same or a corresponding amount. If this were a transaction between two individuals, or even between two governments, it is obvious that no money would be required to effect the exchange, however numerous might be the separate sales and purchases into which it might be subdivided. If the European, for example, would purchase cotton to the amount of a million to-day, it would be certain that the American would have occasion to purchase that amount of merchandise to-morrow; and, instead of keeping a dead capital in money, to pay backward and forward through the extended operations of the whole year, they would make use of mutual credits, either in the form of conventional tokens, or entries upon their respective books. This would be an example of credit in its most safe and salutary form; at the same time performing the functions of money, and avoiding the evils of debt. And even as this commerce is actually carried on by the separate operations of unconnected individuals, bills of exchange, under a well-regulated system of mutual credits, might be made to perform the same function, to a much greater extent than it has been hitherto done. This branch of credit rests upon the solid foundation of property, and it can scarcely be doubted that importing merchants, residing in the staple-growing States, could organize a much more perfect system with the manufacturers of Europe, than any that has heretofore existed. They have great advantages over the Northern merchants in this respect. They are nearer to the consumers, know better the extent and nature of their wants, and can supply them by a more rapid operation, involving less delay, and requiring shorter credits from abroad. Short credits and quick returns, making a small capital, by frequent operations and moderate profits, answer the purpose of a large one moving more slowly, will be the true policy of our importing merchants. For such a system, our means of internal communication, unobstructed at all seasons, and consisting, to a great and rapidly increasing extent, of railroads, will afford facilities unknown to any other portion of the United States. But to enable our importing merchants to introduce this system of short credits in their foreign transactions, the co-operation of our planters and consumers is indispensable. A radical change must be made in their system of economy. Their habit of laying out their incomes before they get

them, and requiring a credit in all their dealing for the year, till the close of it, or until they sell their crops, even if it be longer, is the root of the evil of our whole system of credit. It must be eradicated if we would produce a great and salutary reform in our commerce and credit. If the planters require a long credit, the merchants, wholesale and retail, through whom they were supplied, would at least require an equally long credit, so far as they purchase upon credit. A large money capital becomes thus necessary for the importing merchants, that a long credit may be extended to the planters, who, so far from really requiring credit, own the whole capital which pays for our entire annual importations! This is a complete inversion of the natural order of things. The planters, producing and possessing that which constitutes almost the whole of our annual wealth, and having the means of giving credit to every other class, require credit of all others! How does this happen? The answer is easy. There is no mystery about it. It results from starting at the wrong point, and expending every year the proceeds of the coming crop, instead of the crop already made. If every planter would adopt the system of expending, in the current year, the income of the year preceding, and of making all his purchases for cash, instead of on credit, he would most palpably promote his own interest, and individually contribute his part to a general reform of the most vital importance to the whole country. Highly as we estimate credit, in the operations of commerce, we believe it may be affirmed, as a general truth, that debt is a most consuming moth to the planting interest. What practical planter can doubt, that for the credits annually obtained by himself or his neighbors, at the sales of the estates of deceased persons, and in various other modes, he pays from 15 to 20 per cent. more than the same property would cost if purchased with cash in hand. Let the suggested change in our economy, then, be no longer delayed. Every planter who adopts it will at once perceive its salutary effects upon his own comfort, independence, and prosperity; and he will have the consolation of reflecting that he is at the same time performing the duty of a patriotic citizen. We confidently believe it would dispense with one-half of the capital that would otherwise be necessary for carrying on our foreign commerce by a system of direct importation.

But whatever may be the agency of a well-regulated credit, in bringing about the proposed reform in our foreign commerce, a very considerable money capital will nevertheless be indispensable to its complete accomplishment. Nor can it be doubted that the staple-growing States have the most abundant resources for supplying this description of capital, if the planters, who are our principal capitalists, can be induced to abandon the suicidal course they have heretofore pursued, of devoting their whole income (generally by anticipation) to the purchase of negroes to produce more cotton, and appropriate even a moderate portion of it to aid in the accomplishment of this great enterprise. If every planter would take a dispassionate and comprehensive view of his own individual interest, he would perceive that the blind instinct of accumulation, which prompts him to make the crop of one year the means of increasing that of the next, is the most fatal policy he could pursue. It is a system which, in

the very nature of things, must inevitably defeat its own purposes. It will hardly be stating the case too strongly, to say that at least one-half of the incomes thus devoted to the increased production of cotton, are devoted to over production, and that they are consequently appropriated, not for the benefit of the cotton-planters themselves, but for that of the foreign and domestic consumers of their great staple. The principle of political economy laid down in the report of the Select Committee, and from which this conclusion is deduced, was known to practical men long before it was promulgated by any writer on the theory of wealth. It is founded upon the universal experience of mankind. If the supply of any article materially exceeds the effective demand, a competition is created among the sellers, which depresses the price greatly beyond a due proportion to the excess in quantity. In like manner a deficient supply creates a competition among the buyers, which increases the price in a corresponding degree. So general is this principle, that we may safely affirm that in any probable state of the demand for cotton, a small crop, if not extremely small, will produce a larger aggregate income to the cotton-planting States, than a large one. Between the extreme points where high prices check consumption on the one hand, and low prices check production on the other, there is a wide range for the operation of this principle. There is no class of producers so likely to suffer from over production as the cotton-planters. Widely dispersed over an immense territory, without the means of consultation or concert among themselves, they cannot prevent the habitual occurrence of excessive crops, unless they adopt a *system* which will of itself have a constant tendency to prevent it. The basis of that system should be the investment of at least a fair proportion of their net annual income in some other profitable pursuit, instead of investing it in land and negroes; and we believe that there is no such pursuit that promises a more abundant reward to industry and enterprise than the direct importation of foreign merchandise through our Southern seaports. Where, for example, a man of known integrity, capacity, and industry, with a moderate capital, shall be engaged or disposed to engage in the business of foreign importations, what more public-spirited and profitable appropriation can a planter make of a portion of his surplus capital than to invest it in this importing concern, as a limited co-partner, under the wise enactments recently adopted in several of the staple-growing States?

One-half of the net income of the cotton-planters, thus applied for a few years only, would furnish abundant capital for conducting our whole foreign commerce.

May we not confidently anticipate, therefore, that the planters, who are so deeply interested in the results of the great commercial reform we are attempting to effect, and whose co-operation is so indispensable to its success, will put their shoulders to the wheel at once, with a firm resolution to contribute every aid that may be required for the accomplishment of so glorious an enterprise?

Taking it for granted that all the difficulty anticipated on this score, will vanish before the public-spirited enterprise of our capitalists, we look forward with hopes equally sanguine, to the removal of the existing obstructions to the intercourse between our importing cities,

and the vast interior which they are destined to supply with the manufactures of foreign countries. In this view of the subject, too high an estimate can scarcely be placed upon a railroad communication between the Southern Atlantic cities and the navigable waters of the West. The most high-wrought visions of enthusiasm will, we doubt not, be found, in the rapid progress of events, to sink down into insignificance, when compared with the splendid realities which time will soon develop; and we confidently anticipate that ten years hence history will exhibit to us results which the most excited imagination would not now venture to predict. This magnificent scheme of internal communication will give us the command of the whole Valley of the Mississippi, in spite of the established ascendancy of the Northern cities, in the business of foreign importations and internal commerce. For whether we *scale* the interposing mountain barriers, like Hannibal, or *turn* them like his more skilful successor and rival, the *line of operations* which will carry us to the centre of this immense theatre of commercial competition, will be but half as long as that of our Northern rivals; and, what is next in importance, will be at all times unobstructed, while theirs will be closed up for several months annually, by the freezing of their rivers and canals. And though we may neither defeat the Romans in successive battles, nor drive the Austrians out of Italy by annihilating successive armies, we shall perform an achievement more glorious than either that of Hannibal or Napoleon, while we conquer and bless, by the peaceful weapons of industry and enterprise, plains incomparably more rich and extensive than those which they overran and desolated by the destructive weapons of war.

It is impossible for any enlightened and patriotic citizen of the Southern States to contemplate, without enthusiasm, the beneficial effects which will be produced on our commercial, social, and political relations, by opening a direct communication with the great Valley of the Mississippi. It will form an indissoluble bond of union between communities whose interests are closely interwoven, and will give a tenfold activity to a commerce which even the Alleghany heights have not been able altogether to prevent. The commercial cities of the South Atlantic and of the Gulf of Mexico, are undoubtedly the natural marts of the Western people for obtaining their supplies of foreign merchandise. It is there they find a market for the principal part of their own staple productions, even now, when they obtain their supplies of foreign merchandise from the Northern cities, by a complicated and expensive operation, and by a long and tedious transportation. How decidedly it would be to their interest to obtain, by a direct exchange, their foreign merchandise from the communities where they sell their domestic productions, avoiding all the expense and delay and hazard of purchasing bills on the North! And how great and overwhelming will be the preference due to this direct intercourse of exchanges, when the transportation of their merchandise shall be but half in point of distance, and one-sixth in point of time? Every merchant who understands experimentally the importance of time in the transportation of his merchandise, will at once perceive the decisive advantage which this circumstance alone will give to our Southern cities over their Northern competitors. We,

therefore, regard the completion of the line of communication, to which we have alluded, as a principal and most efficient means of establishing a system of direct importations through our Southern cities, and breaking the shackles of our commercial dependence. When it shall be completed, the commerce of foreign countries on the one hand, and of the great West on the other, will seek our Southern importing cities, by a direct line of communication, so cheap and expeditious, that both parties will find it their interest to meet there and effect their various exchanges. This great work, though itself an artificial structure, will be the means of throwing commerce into its natural channels. Entertaining these views, we cannot but strenuously urge it upon our fellow-citizens, and the political authorities of our respective States, to give every practicable aid toward its accomplishment, and that of the lateral communications which may be necessary to render its benefits more diffusive. Let us act not only efficiently, but promptly. We must seize the propitious occasion now presented to us, lest it pass away and never return.

The practicability of this railroad communication, is no longer doubtful. Indeed, it may be said that it is nearly half completed by one route, and will be more than half completed when the railroad shall have been extended, as it soon will be, from Augusta to Madison, in Georgia. Connecting this with the Charleston and Hamburg railroad, we shall have more than 240 miles of continuous railroad on a direct line to the navigable waters of the Tennessee, and conducting us to a point not more than 200 miles distant from those waters. On this subject we cannot be too deeply impressed with the necessity of sacrificing local predilections to the common good. Let that line be adopted which shall be the shortest, cheapest and best, without the slightest regard to those conflicts of local interest, which are, at best, comparatively unimportant, and perhaps purely imaginary. The great benefit which our whole interior is to derive from a direct trade, both with foreign countries and the Western States, must be reflected from our importing cities. If it causes these to grow and flourish, the whole interior, within the sphere of circulation, will participate in their prosperity, by a law which is as certain in its operation, as that which causes the blood of the animal system to flow from the heart to the extremities.

Such, fellow-citizens, are the views by which we have been actuated in calling your attention to the grave and important subject of this address. It was not to have been anticipated, that the purposes we so distinctly expressed through the report of our Select Committee, would be so greatly misapprehended as they have been by some of our fellow-citizens. Surely we may claim the privilege, and urge the expediency of carrying on our own commerce with foreign nations, directly through our own cities, and by our own merchants, without justly incurring the imputation of hostility to the Northern States of this confederacy. We are not aware that they have any prescriptive right to act for us, any more than they have to think for us. It is no hostility to their interests, but regard for our own, by which we are animated. "It is not that we love Cæsar less, but that we love Rome more." We are certainly as anxious to encourage, upon principles of reciprocity, a direct trade with the Northern States, as with

any other portion of the world. Free trade with all the world, untrammelled by legislative restrictions, is the motto inscribed on our banner. "We know neither friendship nor hostility in trade. Wherever we can sell highest and buy cheapest, that is our market; making no distinction between "Trojan and Tyrian." But we are opposed to an absorbing centralism in commerce, as well as in government. Our recent experience has but too impressively admonished us of the fatal revulsions to which it is calculated to expose us. We have seen a pecuniary pressure in the city of New York throw the whole country into embarrassment, and its currency and exchanges into the utmost confusion and derangement; whereas, if the commerce of the United States, external and internal, had been fairly distributed through its natural channels, scarcely a shock would have been felt by the great body of the people. This view of the subject causes us to regret that the extensive trade we carry on with the manufacturing States of the North, exchanging our raw cotton for their various manufactures—a trade highly important to both parties—is not carried on directly between the cities of the planting and manufacturing States, but like our foreign commerce, indirectly through the city of New York. Almost the whole of our immense exchanges centre there; forcing thither, as it were, upon the heart, by something like a congestive process, the circulation of a system so vast, that it cannot be regularly and uniformly thrown out through the natural channels to the distant extremities. Periodical disorders and convulsions are the unavoidable consequence of such an unnatural and unhealthy condition of our commerce; and without pretending to speak for other portions of the Union, we confidently affirm that the people of the Southern and South-western States are invoked, by considerations of the most enlarged patriotism, as well as of an enlightened self-interest, to apply a speedy and effectual remedy. The means of achieving our commercial independence are abundant, and all the auspices are eminently encouraging. Let us embark in the enterprise with a spirit and resolution commensurate with its importance, and a splendid future will be the result and the reward of our labors.

We have recommended, by a resolution unanimously adopted, that a convention be held in the city of Augusta, on the first Monday in April next, to devise farther measures of concert and co-operation in this great undertaking. We trust and confidently anticipate that the people will meet forthwith in their primary assemblies, to select delegates to that convention, and that all the States interested will be fully represented. May Heaven smile upon their deliberations.

ART. VI.—THE NORTH-WESTERN REGION OF LOUISIANA.

THE OUACHITA VALLEY—COTTON LANDS—HILLS—SILK GROWTH
—VINES—SHEEP—PARISHES OF CATAOULA, JACKSON, UNION,
CLAIBORNE—ARKANSAS IN THE OUACHITA VALLEY—FLORA
LOUISIANA—FORESTS—COTTON SOILS—TOBACCO—INDIGO—
WHEAT—MADDER—FRUIT-TREES—SPRINGS—CYPRESS SWAMPS.

This is the fourth of a series* of papers by the Hon. H. Bry, descriptive of that most interesting and little understood region of Louisiana, commonly known as the OUACHITA. We have seldom published anything more practical and valuable. Judge Bry is a very aged citizen of that country, having resided there for thirty or forty years, and universally respected. We are delighted to learn that he will continue his Sketchings in which he could only be influenced by a high sense of public spirit, considering the disadvantage of almost entire blindness which he has now to encounter. We acknowledge our deep obligations.

THE western side of the Ouachita Valley is nearly all covered with hills or *rolling* grounds, with a few intervening prairies; there are also many tracts of good soil immediately on the banks to the foot of the hills which approach the river more or less, in several instances to the water's edge, where they appear as high bluffs, perpendicular in many places. The first vine-hills seen when ascending the river are at Harrisonburg—they extend, however, farther in a south-western direction toward Catawba lake, thence toward Red river; within that side of the valley tracts of rich bottom lands, some of which of considerable extent are found on the borders of nearly all the creeks or bayous flowing into the Ouachita from the dividing ridge, which separates the waters running into it from those which find their way into Red river.

That part of the west side of the valley situated immediately on Black river, and also on Little river, deserves particular notice, and will be remembered in the description of the lands on those two streams. The hills are not all of that inferior quality of soil implied and generally believed to compose the vine-hills; the greatest proportion is good second-rate land; the natural growth not exclusively vine, many are covered with hickory, dogwood, different kinds of oak, sassafras, sweet gum, and even black walnut and cherry. These lands will produce on an average one thousand pounds of cotton in seed per acre, and as much corn as is gathered on the same space of ground in the rich bottom lands of the Ouachita river. Although these second-rate lands are not as productive as the last named, that difference is compensated by the diminution of labor required to keep a crop in good order, vegetation not being so luxuriant there; so that a man who can attend to a crop of twenty acres of the best land, can cultivate thirty acres of inferior soil.

The highest hills are uniformly the poorest; two species of vine constitute nearly the whole of the forest which covers them—those trees acquire a great size and height in many instances; among them is often seen that kind of oak commonly called *black-jack* (*Quercus nigra*—Lin.), of which there are several varieties—they do not indicate a good soil, but are capable of yielding valuable crops—SILK might, and will, become one; the *Morus Multicaulis* grow well in

* See Commercial Review, vol. iii. 225, 324, 407.

those lands, the climate is well-adapted to the raising of silk-worms, the atmosphere being there generally dry, and of a temperature favorable to those valuable insects during the season of their existence, which on the Ouachita begins from 10th to 20th March, the average time of the hatching of the eggs, to the middle of May, when their education is terminated, and even sooner, when they have been attended to. Twenty years of experience and close observation have dictated the above statement.*

Grape vines can also be cultivated on those hills with success; and wine, no doubt, will sooner or later be made there, and become no inconsiderable addition to the resources of the country. Indigenous grape vines abound in the high as well as in the low lands of the valley; the best species and their varieties are found in the hills, some of which would not be misplaced on the best tables, and would yield good wine. The most remarkable grape (the natural growth of the valley), is the species called by the first French settlers, Raisin de Battura (*Uva riparia, Michaux*); it is found on the banks of the Ouachita, above Campden, in Arkansas, and is met with as far as within a few miles from the hot springs. That vine is an extraordinarily good bearer; the berries are of a dark blue color, and would make good wine. It grows at the water's edge, and is yearly, or nearly so, inundated when the river is at its highest; it shows but feeble signs of vegetation before the waters subside, yet is among the earliest reaching maturity.

The imported grape vines thrive well in the hills, the product of which would be superior to that obtained in the lower lands; not only because situations and exposures best adapted to that culture will be found abounding there, but also because in the bottom land the berries do not always mature regularly and together in the same bunch, and are apt partially to rot even before maturity, which would necessarily impair the quality of the wine; whereas in the hills they mature more uniformly, and generally remain sound until fit to be gathered.†

The inhabitant of these hills will find another valuable resource in the raising of SHEEP; the country is well adapted to that branch of agricultural industry, which does not interfere much with the labors of the field, and would rather improve their result by the manure it would procure, so valuable in lands, the fertility of which requires stimulating; the expenses attending it will be found to be far below that incurred in the North-eastern States, where it is considerably profitable, and giving a good return for the care of the wool-grower.

The hills, which are lower than those described, and which often present the aspect of an undulating, rolling country, are generally composed of better soil, which can be called good second-rate; such as are found in the parishes of Catawba, Caldwell, Jackson, Union, part of Claiborne, and in that portion of the State of Arkansas situated in the Ouachita valley. These hills are covered, as stated before, with most of the trees and plants indigenous in the northern section of Louisiana, a nomenclature of which would be here of but little

* Judge Bry was one of the earliest cultivators of silk in Louisiana, and his efforts have been crowned with high success. We have more than once entreated him to communicate to us some of the results.—Ed.

† The reader will consult to advantage the able paper on Vines, etc., in our June No., 1847, from Hon. Joel R. Poinsett.

interest; the task is reserved for the well-informed botanist, who will, it is to be hoped, at no very distant day give to the public a complete *Flora Louisiana*.

A valuable tree, the natural growth of the northern part of the valley, cannot be passed by in silence even in this rude sketch of the country—the Osage orange (*Bois d'arc*), *Aurantia Mactura*, the fruit of which attains the size of a large orange, of a beautiful bright color, not eatable, however; its wood is of a yellow hue, hard, of a fine grain, and almost incorruptible. It affords a dye equal to the Pernambuco, and would find a ready market for that purpose if it could be exported at a reasonable cost. Excellent hedges can be, and are in fact, made with it, either by sowing the seed, or by cuttings, laid a few inches apart, in double and even treble rows; being kept low and regularly trimmed, it remains dwarf-like, branching abundantly from the ground with very sharp thorns about an inch long, and forming an insurmountable barrier against the intrusion of any kind of cattle, &c. Its glossy leaves, of a fine green, can be used as food for silk-worms; they eat them readily after their first moulting, not so well during their first age.

In addition to the resources offered by the hills of inferior soil, those of good second-rate land will reward the industrious farmer with crops of COTTON, TOBACCO, INDIGO, WHEAT, and all other small grains, (*cereal*ia). Madder would also grow well there, and others which knowledge or necessity may introduce into the country.

The hills abound with springs of the purest water, particularly within a space of about eighty miles in length, from north to south, of unequal-breadth. In places where there are no springs, or where they are too far from the dwelling of the settler, wells are dug, affording an ample supply of good water. These springs form gradually in their course creeks, which ultimately carry their tribute to the Ouachita river. In their clear and transparent waters fishes are seen, such as trout, perch, bass, &c., of a size to tempt the skill of the angler. The water-power of a few of the largest of those streams, has already been used for saw-mills, cotton-gins, grist-mills, &c., and many more remain, which can be employed for similar or other purposes.

FRUIT TREES thrive well on the hills, particularly the peach, which succeeds better there than in the rich bottom land, where it is more subject to rot or to be impaired by worms; they, however, can be greatly prevented by proper care and attention in the culture of that valuable addition to the comfort of the farmer.

The few PRAIRIES on the western side of the Ouachita valley, are not equal in fertility to those situated on the eastern side. The southernmost one is the Catawba Prairie, which joins the lake of that name, through which flows Little river; it is partly subject to inundation at the highest stage of water. The next met with, ascending, is Prairie des Côtes, elevated about 300 feet above the level of the Ouachita river, near which it is situated; its soil is poor, requiring manure to be made productive; is in the parish of Caldwell, at a distance of about 70 miles (by water), from Harrisonburg. No other prairies of any extent are found on the western side of the Ouachita, except a few, generally called overflown prairies; they de-

serve that appellation, being annually inundated at high water. There are, however, on that side of the valley, in Arkansas, some prairies of more productive soil; such as Mount Prairie, formerly called Prairie de Han, the name of a hunter who made it the centre of his hunting excursions about sixty years ago.

In the low lands of that side are found CYPRESS SWAMPS, in the bottoms of large creeks or bayous, forming ponds or lakes, some of which are of considerable extent; they are full during the annual time of high water, and dry, or partly so, when that season is passed. The overflow on the Ouachita river, spoken of before, is, or rather was, an immense forest of cypress, that most valuable timber of the South; they have been unsparingly cut down and rafted down to New Orleans for a market. Thousands of trees are found there, which have been cut for years, and left, when the river did not rise enough to float them out of the overflow; or, because they are of that kind of cypress which sinks, commonly called black cypress; its specific gravity being greater than that of water. Their waste is the more to be regretted, as cypress trees are not spontaneously reproduced in the swamps as other trees are in the forest. It appears that the cause of this want or failure in the reproduction is the following: Although many places in those swamps are covered with young cypresses from the seed, giving to those spots the appearance of fine green meadows, when the swamp is dry (in autumn), yet none of these will live to see another season; they are at the next high water entirely covered, and perish; few, and very few indeed, which happened to grow on the edge of the swamp, or on higher spots in the swamp, escaping total immersion, soon attain a height above the highest water-mark, which insures their existence; for although a total immersion is fatal to the plant, it is safe when its smallest part is above that risk. This opinion is founded on several years observation in the cypress swamps of Ouachita.

The climate of the western side, not differing from that of the whole valley, it will be noticed when treating of that subject in another number.

Art. VII.—CULTIVATION OF THE SUGAR-CANE.

CANE LANDS—DRAINING DITCHES—DRAINING MACHINES—CANE TRASH—BAGASSE—MANURING—WIDE AND NARROW PLANTING—EFFECTS OF FROST IN DIFFERENT LOCALITIES.

Parish of Plaquemine, La.

To J. D. B. DE BOW, Esq.,

Dear Sir—As regards the cultivation of cane, and its manufacture, I would not, unless solicited, have offered my opinions, except to strangers who may request information. To them, when a little warning may be productive of some good, I think all who have had experience should endeavor to contribute their share.

I presume there is no crop in the world that more experiments have been tried upon than in the manufacture of the cane-juice into

sugar, both by those who have had and those who have not had the advantages of a chemical and a philosophical education—the one groping in the dark, the other with all the advantages of light; yet both have in a great degree been foiled, however much improvement may have resulted. Sufficient attention has scarcely been given to the cultivation of the cane; therefore I shall, in this communication, confine myself to it.

Having for many years gone through with all the various plans of manuring, renewing, trashing, planting and working, canaling and ditching—about the most important of all—I have come to the following conclusions:

Cane is a very exhausting crop, therefore it requires that a very large return should be made of that food used by the cane in its production. To preserve the land in its first state, and to place it in a proper situation to receive this food, canals should be large, ditches frequent and deep. A plantation should always have a deep front ditch, running by the front fence from the upper to the lower line, from three to four feet wide and from three to four feet deep, to prevent the saturation water (which comes by capillary attraction, even when below the level of the land a little) from injuring the land, which, when this is not done, it very often does, and the more so when the land is sandy. If the land is a close-grained clay, then it is dry when the water is much nearer the surface; the prairie-clay lands, when one foot and a half above the water, are as dry as the sandy land at three feet, and can be plowed sooner after a heavy rain. I very often cannot plow my front lands, when five feet higher than the river, after a rain, though I can transfer my plows to my back clay lands, not two feet above the level of the lake, and do good work.

It is very fortunate for us; for were the back lands (which descend as they leave the river, in this region, about six feet for the first twelve arpents), as sandy as the front, at the extremely low level that we work many of them, they would yield nothing—keeping *always* wet. One mile from the river, I can always plow a day earlier than on the river bank, a difference of full four feet in height. Land, when at all wet, should never be plowed or worked. Of course, the deeper the ditches are the more mellow will be both soils. The mixed land is our best.

From the upper to the lower line, every acre apart, a ditch of four feet wide and from three to four or five feet deep should leave the front ditch, taking the most direct route to the back canal, it running parallel to the river behind your fields, say at twelve, fifteen or twenty acres; taking care that these leading ditches should be laid out by compass at exactly the same degree, so as to be perfectly parallel, and by this means saving short rows, known to every planter as very troublesome and unhandsome. Every half acre apart, from the front fence to the back reservoir canal, should have a ditch parallel to the river one foot deep and one and a half wide, to carry the water from the cane furrows to the leading ditch. When the leading ditches are only one acre apart, the distance from the centre of the cut to each side being only half an acre, of course the water runs rapidly off from the cane rows. When the leading ditches are two acres apart (as

they are upon most plantations), the distance being great, added to the inequalities of the land, the trash frequently stops the water from running off fast, often causing temporary ponds; on that account the cross-ditches have to be renewed with spades almost every year, taking about two or three weeks to dig them. This work prevents frequently the leading ditches from being more than one-fourth of them dug out, as time is not allowed for more, other work pressing. I have always lost a great deal of time on these ditches, which I now avoid by large leading ones at one-half the distance, which allows the cross-ditches to be more shallow, merely requiring them to run the water off the cane rows. I have latterly, in the spring, run a double horse plow up and down them, and in scraping cane cleaned them well out, and find much time saved. As to the large cross-ditches, there should not be one ditch a horse could not step over, from the river to the large back reservoir canal behind your field; that should be twenty feet wide and four and a half feet deep to five, leading (near the lower end of your place if possible) into a large and deep canal, thence to the largest bayou to be found, cutting through any small ones and seeking large ones. The small ones grow up in grass at the very time when most wanted, in September or August, when the rains are heaviest, and are then useless. The canals should be always wide, and when dug out not less than four and a half to five feet deep; for although many prefer the shallow and wide, arguing rightly, that the first two feet take off nearly all the water, yet still the canal does not fill with grass half so quickly as when it is shallow; and also, when the dry spells of weather come, then the canal becomes very low in water, and also the field-ditches, and the ground becomes itself deeper drained; and when the rains do come, which they generally do after a long dry spell of some length, it takes a great deal to saturate the earth, and a good deal to fill up the canals and ditches; which in this way also, as well as carrying off the trash, render material service.

I was induced, when I first established my place, to make several large cross-ditches, by a planter of reputation for making fine crops, because he said the layers of land, or pores, were in layers running from the river, and the cross-ditches as they intersected these layers, being deep, drained better; but this was most certainly a mistake. I have now several ditches to fill up, being just where they should not be. I have given this subject strict attention for six years, and am perfectly convinced of its fallacy. A deep canal, deep reservoir canal behind, parallel to the river, and deep leading ditches one acre apart, four feet wide, with small shallow cross-ditches, one foot trenches (so that a horse can step over easily and not stumble) to carry the water from the cane, and a deep front ditch, are all that is required to drain a place well. When the cross-ditches have to be dug out, from the width of the two acre ditches requiring it, they are followed up quickly by the double horse plows, which usually fill them up, and should a rain occur before you can get your hoes over to clean them out, they become as bad as ever. The others, every time your hoes pass, scrape well out, and they are done with. On the contrary, half-acre leading ditches of two feet and a half are too easily filled up, and are not sufficiently wide to allow of being dug

deep, which is absolutely necessary to a good yield of sugar; also causing an unlimited number of hedges, which is the only draw-back to the acre leading ditches.

But the greatest of all improvements in this way is the draining machine,* which I have seen keeping six hundred acres of land in an adjoining plantation, clear of water, the water outside of the flood-gates being twenty-four inches higher than upon the inside. The leakage and several heavy rains were evaporated, so that in three weeks the machine worked but once, having first drained the canal and ditches dry, as deep as they went; this also through a low prairie, which was under water nearly all of last year, and is now high above the water in the canal. The best method I think for draining our plantations, is to make the canals that now drain, still drain the lands adjoining the river for eight or ten acres back, which are well above the water—then the machine will not have to drain more than the back lands; for instance, thirty acres front by forty deep, give you in this region about twelve acres deep, high above water, equal to three hundred and sixty acres, and twenty more by the machine, would amount to six hundred more; this then takes a strain of nearly one-half from the engine, rendering the business easier to keep the six hundred clear, and of course with less expense.

This is our plan of an engine to work here, where plantations are cultivated as some are, and this among others, twenty acres in depth, the back lands for four or five acres of the twenty though above water high enough to cultivate, still are not high enough to prevent injury such a year as the last; this, then, had better be put under the influence of the machine. We have yet to see though, if such a season as that of last year can be mastered by this method of draining; I myself believe it can be done perfectly.

The next in importance is the renewal of lands by manure, and as an opinion is gaining ground that the cane trash is sufficient to keep land up alone, I must say that I have not found it so. Though on the old lands the cane trash may be of much use, and upon new, the ashes are more so; yet still this alone will not renew old lands, if placed there forever; and moreover the cane trash ploughed in, as it is by those who have sounded its praises, can be but of little use. Among the first to plough in the cane-trash, was myself many years ago on an adjoining plantation, where I believe it was first generally used; and the owner of which plantation has in part given it up, though more from the difficulty of plowing it in, than anything else, not finding his cane do as well, as where the ground was well plowed, and putting back the plowing so much; the leaf of the cane top catches on the point of the plow and it immediately comes out of the ground although almost rotten; and even in quite wide rows of six and seven, and sometimes eight feet, it is very difficult so to haul it, where the crop is heavy, as to get it out of the plow's way, though eight feet when properly worked does much better, and by this width, double horse plows can always plow, without injuring the cane, managing it better.

* For a full and elaborate paper upon Drainage and Draining machines on the best models, with illustrated wood-cuts, see Commercial Review for January, 1847. There is no subject of more importance to planters.—Ed.

The various plantations in this neighborhood cannot in my opinion be benefited one iota by the cane trash. They have not plowed out the middles as usual, on account of the trash impeding their plows, leaving them consequently full of weeds the whole season; and not only that, the cane trash is now, upon the last working, when in a rapid state of decomposition, exposed by being shown upon top, the last working, to the sun, rain and winds, and not having broken up the middles with large plows deeply, when the cane was small, and not injured by three or four horses; they cannot get enough dirt to cover the trash, and there it will remain on top gradually seeking its departure to the same place where fire would have sent it without all this trouble. As to its lightening the soil—and such an idea prevails to some extent, among those who have not long tried it—the lighter particles of straw, chaff, or anything of the like nature, will gradually, by merely the falling of rain and stirring about of the elements, rise to the top and the dirt will go to the bottom, being heavier. At this present moment much of it remains in the middles, not being able to get it plowed in fast, and work going on slower; and I have seen some cane lately that is very nearly destroyed from this delay occasioned in working it, grass having got the ascendancy. I have worked, for four or five successive years, cuts along-side of the same kind in cane, one the trash plowed in, the other burnt and plowed immediately—I could see no difference whatever; last year they were the same, both indifferent, as the season was bad, giving very little over a hogshead each. Not so the land out one year in peas; and that out two years in peas, on an adjoining place below me, upon which the trash has been given up, for peas and deep plowing, and on this land the cane was magnificent, and admired by all; at least one hundred and twenty acres in one body, giving over two hogsheads, and this at such a season as last year, on old cocoa ground in cultivation for twenty-five years; it is now, I will venture to affirm, equal to the finest cane in the State, and twelve years ago, this was a bed of cocoa, and yielding scarcely anything. Upon this field there are now one hundred and twenty acres of plants, seventy of second ratoons, and the balance of first ratoons, amounting to about one hundred and eighty acres, that I have no doubt will give over two thousand to twenty-two hundred pounds per acre; this has all been in cultivation twenty-five years; we formerly failed in making this land produce when I lived on that place, by attempting to renew the land by planting corn with the peas; it was of some service but cannot bring up exhausted land. Peas were then tried without the corn for two years, and that was all well turned in, the large sock ox plow of twelve or fourteen inches opened the furrows, the subsoil plow followed, the double horse followed, cleaning up the subsoil's dirt, and the result has been perfectly satisfactory; no cocoa land can stand that, the cane masters it directly. To enable a man to keep his land always in good heart, he should always in a field of six hundred acres have out in peas about two hundred and fifty, that is one hundred and twenty-five in peas alone; turn that in, and put in corn and peas, then in cane for three years, and then out again; by this process, cocoa or any other grass is kept sufficiently under, and the land will have received from the peas the nourishment taken from

it by the cane, which is its chemical food, to be got from nothing else in a like degree. Should there not be sufficient land, as many say, to throw out, how much better is it to *take* that land, and after a very few years have your place yielding two hogsheads per acre, instead of seven or eight hundred, as is quite common among many that are called old plantations. An old plantation is merely the name for a place that should by the time that it has been established be made a perfect manure bed; I have seen on these places scarcely any yield, and the bagasse which by piling on one side to rot (now thrown in the river), could, when it has rotted, in a very few years itself renew the place by covering the cane with it, as is done now on all the lands around some sugar houses, too near and convenient for hauling to be thrown out; this manure is slightly covered with dirt, and will give a good yield for two years on the oldest lands. Renewed lands will not last as long as new ground cane, and had better, if possible, be kept free from corn, setting aside some new land farthest off for that purpose to be kept so. Stable manure though is better than bagasse, but does not last so long; lime is good upon fat lands, but salt is very deleterious.

In thus far speaking of trash, I only mean to say, that when improperly worked it is worse than useless, and when properly worked, useful only to a degree, but does not do away with the absolute necessity of renewing by peas, and not working too long. The experiment has been tried on an adjacent plantation, and it has certainly deteriorated, and a very few years worked without renewing will run it down. When the former owner and excellent manager of it, my particular friend, regularly put it in peas, it was almost too rich, and his crops were very great. I plow in all my own trash, but never leave it beyond the second plowing, as I am an advocate for plowing all the middles out at the second plowing, covering up the trash at the foot of the cane early in the year; I this year found it assisted much in the latter work of the season. Cane should never, except in perfectly new land, be obstructed in growth by grass, or weeds; and it is impossible, unless you do plow out your middles early, to be without them.

There is much difference on the subject of wide and narrow planting among the planters—almost as much difference as exists among physicians on fever. Cane requires two things always—first for its growth, and then for its ripening—sun, and air. In the narrow rows it cannot have the full benefit of these, and if there is doubt, we had better give it the trial; I am myself more and more an advocate for giving the cane width, both for the former reasons, and to allow the double horse plows to work all the season, after the first breaking up of the larger plows, going deeper, and being also much easier for the horses. I planted, five years ago, eighteen acres of cane, fifteen at five feet, three at nine; I was then incredulous about this distance; the first gave me two good crops, and then the third year was small, almost nothing; I then threw it out, one year in peas, and this year planted it at nine feet, bedding in the peas, as I had done the other. The three acres I bedded, planted three canes side by side, it yielded about twelve hundred pounds the first year, became much thicker the next, with very large cane, yielding fifteen hundred pounds; this is

the fifth year, and the ratoons are as fine as new ground, and the hill is bedded up full two feet, and I have no doubt will be as good next year, as I am every year now plowing new dirt up from the middle, that has never before been used; there was always, excepting the first year, more, and riper, and larger cane upon this ground, than upon its fellow cut along-side; the trash I always bury close to the roots, and hill up on it. In this way I am planting all the front land cuts, three and a half acres deep, and covering with manure in the same rows, but would not plant any back cane (except my new lands) in this way, as the frost has from its width a greater opportunity to kill it. The front lands here are killed very late in the year; all the other plants I have bedded in fourteen feet beds, planting them at five feet apart on the beds, and nine in between the beds; this is to allow the beds to be plowed up as high as possible, and the cane trash to be hauled in the middle of the wide row, then to be buried for the first two years; by that time I shall have to plow them up for dirt, as my beds will become very high, and bury it next the roots. The last year's tops that the cane has to run, the dirt can be turned upon, on the wide furrows, and peas planted there, or planted in cane, the narrow rows on the trash bed, and covered with manure, should there be land wanting. The new land beds in the lower grounds are sixteen feet beds, the narrow rows on the beds five feet, the wide ones eleven. I have found this plan work well, and am, as quickly as I can, transferring my whole crops this way; I have no hesitation in recommending it to both new and old plantations that wish to make trash and bed-cane land, which is by far the best. Make the beds with large French sock plows, twelve or fourteen inches share, with oxen. The narrow six feet beds, to put cane in, or even eight are bad, as you cannot, where you ratoon several years, get dirt, and a bed should never be less than twelve to sixteen feet, to make a passable high bed. It is also the easiest way to turn over cane stubble; two rows of six feet in one, will always make one of twelve, and any planter who once works in this way the trash manure, will never change.

Plant cane should be put in the ground at eight feet, three good canes; at six, two and a half; at five, two, carefully picking the cane, never using tops, except from new ground heavy plants, and one year ratoons, it being better always to mattress a plenty. Planting tops is a very bad cultivation, and has run out the creole otaheita, and would the ribbon canes if persisted in. A former neighbor and myself have tried alternate rows of tops and whole cane, and found we could tell them wherever we saw them; the tops being the smallest, although from the good quality of the land, it will not frequently be perceived, yet in the end there will certainly be a falling off. The red ribbon is best for new land, the common striped for old land. I have tried frequent experiments upon turning the cane upon the side, and perceived but little difference in the cane coming up; but when the cane was sprouted, it has to be carried to the place of planting half shucked out, and is always much longer coming up; this in dry seasons makes a difference of a week or ten days in coming up. Cane should be covered lightly, and when covered by manure it should be well rotted; if by bagasse that is not, it will put back the sprouts some time; this is the best way to manure, always covering lightly

with earth to prevent it from evaporating and losing much of its nourishment. The last working it should have a hill of four inches, going in a direct line from the centre of the rows. Never hill plant cane too much; the roots should always be tolerably near the sun and air, and the ground always kept light, and until the last plowing the dirt should always be thrown away from the cane and thrown back at the same time, one furrow close to the cane only, and the others back again. The first year ratoons should have the dirt thrown away from the cane, about the fifth to the tenth of March, leaving about eight inches width where they are good, and digging them pretty well down with the hoe; if cut too close by the plow they will dry up and die, in the dry spell in the spring that we always have. As to the idea of cutting down to three inches, as formerly done by many, upon old land, you could not take a more direct way of killing the stubble. I saw, three years ago, at least one hundred acres, near to the city, killed in that way. It is necessary not to scrape the roots too closely of dirt, but the earth should be finely chopped and left on the hill to prevent its baking, on all but damp, sandy land, and they then will give support to the old stubble, from which the young shoot derives its nourishment, until its own roots take hold; this should have the dirt once thrown away, and the *first* working afterward should have loose earth given it, and the trash should be then hauled in and buried at its roots; four inches more hilling should be given this year's growth; the same work should be given to various other years' ratoons, always plowing out your middles with a three horse plow, deeply in the beginning, or perhaps with a four horse plow. The hills of both plants and ratoons should be wide and large, not narrow and peaked, as is frequently seen. The cane roots in the latter months spread out laterally very wide, and these narrow ridges force them to seek lower down for what they could not get in a higher soil above, and as the difficulty of penetration increases lower down, they do not expand and give the same nourishment.

In your November No., 1846, an assertion is made which is, I believe, contrary to the experience of almost every planter. It was, that the cane in moist places and in wet spots, is more injured by frost than in dry spots; this is most certainly an error. Whenever water lies on the ground during frost, the cane will scarcely be injured; and where the ground is much saturated with water, the cane roots are never hurt, even by a heavy frost; on the contrary, our great dread is always a dry frost. I have seen, about fifteen or sixteen years ago, in an entire field, the cane-leaves incrustated in ice, yet little damage done. The cane was not at all frozen, when every one thought it lost. I do not allude to the great sleet in 1830, I believe, but a much lighter one; I think in 1830 a great deal of our cane was destroyed in January; it was a severe frost, though from the water on the ground then, the stubble was not hurt. The water on these low spots kills the roots, not the frost. The cane nearest the river, on account of the moisture there, is very seldom killed, when back from the river it is destroyed by frost. The cane close to ditches that are filled with water you will not find much hurt, but that on a ditch-bank without water will be as much injured as cane elsewhere. There is scarcely any difference of opinion now respect-

ing the winrowing of cane in case of frost; but some think it should be tolerably well checked by frost before it is cut down. I have cut down eleven acres in October, and after all was dead on the place in February, rolled it and found it much less hurt than what was first checked by frost and then winrowed, and I have invariably found cane keep better, when winrowed perfectly uninjured. From this I conclude that winrowing should be done (when the crop cannot be taken off in proper time) tolerably early, as soon as ripe, say by the first of December, before it is at all hurt.

I will leave the manufacture of the sugar to others, who have dipped in the pans of improvement deeper than I have, and therefore are of course much more acquainted with all the new inventions, and their benefits. I have here asserted nothing that I have not tried well, and been long convinced of their advantages. I am, dear sir, yours with respect,

R. A. WILKINSON.

Art. VIII.—THE FAME OF INDIAN CORN.

"The fruitful maize, in verdant vistas rear'd
Its spire majestic to the playful breeze,
Spreading its loosely-waving panicles, while low
The purple anthers bending o'er to kiss
The silken, tassel'd styles, delight the eye
Of watchful Ceres."

WHILE the North and East have their MANUFACTURES, the source of inexhaustible wealth, and the South its COTTON, its SUGAR, its RICE and TOBACCO, the great producing powers of the immense western country are taxed in the culture of WHEAT and INDIAN CORN—articles bidding fair to become the new staples of American export to all the world, in quantities it is almost impossible to estimate.

What may be our future capacities of production and exportation of Indian Corn, it is almost impossible to determine. ONE THOUSAND MILLIONS of bushels could be yielded one year hence, were there a certainty for such a demand, so limitless are the fields adapted to its culture. With a demand anything like that of the past year, most of the Southern States would go into its culture with greatly more profit than cotton could possibly give. We even see this movement already.

In regard to the nutritive properties of Indian Corn, there can be little doubt. In the Southern States it constitutes a primary article of food for rich and poor, old and young, the princely planter and the meanest of his slaves. In all its various combinations, it belongs to the table as do the dishes themselves.

We are acquainted with but two analyses of Indian Corn, the one by Dr. Dana, who finds 100 lbs. of it to contain 1.31 parts of ash or incombustible matter, viz.:

Potash	0.200
Soda	0.250
Lime	0.035
Magnesia	0.128
Oxide iron	a trace
Silica, flint-sand	0.434
Sulphuric acid	0.017
Phosphoric acid	0.224
Chlorine	0.008
	<hr/>
	1.312

Professor Shepard, of Charleston, found in Southern corn but 0.95 parts of ash. In every 100 parts of this ash he traced—

Potassa	20.87
Phosphoric acid	18.80
Lime	9.72
Magnesia	4.76
	<hr/>

Omitting Silica, &c.....55.15*

Considered as an article of food, Dr. Dana found in Indian Corn—

Starch, oil, sugar, and ² gaine	77.09
Nitrogenous matter, albumen	12.60
Water	9.00
Salts	1.31
	<hr/>
	100.00

There has been a prejudice in other countries against the use of this crop for the food of man—an ignorant prejudice to be sure, even existing among those who find oats not unpalatable. This will be dissipated, from the efforts that are now making, and from the starving condition of many parts of Europe the past season, that have been forced to eat of it or perish.

Cobbett, a number of years ago, it will be remembered, set himself at work to introduce the corn as a staple of Great Britain; but in this, failure was inevitable, from the uncongenial climate. We regret not having at hand the able arguments he used in advocacy of this article of food.

Dr. John S. Bartlett, of New York, the able and courteous editor of the *Albion*, has furnished us with a note in answer to our queries, and several interesting pamphlets.

The first is a letter addressed by him, in 1842, to Lord Ashburton, showing the great advances in the trade of breadstuffs between the United States and Canada, and arguing that, with proper encouragement, it would reach 10 or 12 million dollars annually. He argues that America should supply England with food for several reasons, and by way of Canada.

1. Because the St. Lawrence is the national outlet for all bulky articles from that part of the North American continent.

2. Because, from the rates of duty on the frontier and in England, wheat enters the ports of Great Britain by this route under very superior advantages.

* That is to say, for every 1,000 pounds corn taken from an estate, the land is robbed of 9½ lbs. inorganic matter, whereof 5½ lbs. consist of principles of prime value to all species of crops.

3. Because, when the Welland Canal becomes enlarged, and the impediments in the St. Lawrence removed, the navigation from the upper lakes to Montreal and Quebec (the ports of shipment) will be so easy, that flour and grain may be transmitted thither, and shipped at a lower rate than at any other port on the continent.

4. Because, by this operation, Great Britain can give admission to the American products on terms more favorable and exclusive than if her ports were opened generally to all nations. And it is advantageous to offer this favor to America, because America will take British goods in exchange.

He argues that Britain requires a cheaper article of food than wheat, or any grain now in use, and considers that article to be **INDIAN CORN**. It could be laid down in any part of England at retail for \$1 the bushel of 58 lbs., being about one penny the pound. This pound of meal, boiled with four pints of water, will give 4½ lbs. product—a sufficient breakfast, with milk or sugar, for four persons, being one farthing each, or, including milk, &c., a breakfast would cost one halfpenny. Dr. Bartlett then deduces certain conclusions, the fourth being that maize possesses superiority over rye, barley, oatmeal, or potatoes; and the eleventh, that a new article of export from the United States will put forth another ligament for uniting the two countries—will enlist a large mass of the agricultural people of this country in favor of a continuance of peace, and tend to dissipate the clouds that now overshadow the pacific relations of England and America.

The second pamphlet is an English republication of the first, with an appendix, containing receipts from Mr. Skinner for preparing corn for the table. We extract from these the directions which refer to the most usual and important preparations:

CORN BREAD.—1 quart milk, 1 lb. Indian meal, 2 eggs, small lumps of butter, a little saleratus—bake in a flat pan.

JOHNNY CAKE is prepared from the corn meal scalded, and the dough rolled or pressed out to half an inch in thickness, is cooked one side at a time in front of the fire after being put on a board, sheet of tin, or plate, or any material of suitable shape.

HOE CAKE is prepared by wetting up corn meal with boiling water; is made into a cake and cooked in front of the fire, on a board or plate. It was originally put on a hoe, whence its name. This resembles the Johnny Cake.

ASH CAKE is prepared from the corn dough made as above, and is cooked as follows: make a bed by scraping away the ashes on all sides, roll the dough after being made into form between two cabbage leaves, place it in the bed, and cover up with the previously removed ashes and embers; a little practice will determine the length of time requisite for cooking. The process resembles that of roasting potatoes.

HOMMONY.—Wash a pint of grist (particles of flint-corn reduced to the size of the coarsest sand by grinding, the fine parts and husk being sifted off) in two or three waters, giving in each instance settling time. In pouring off the water, let the grits be well rubbed with the hand to separate flour. Put into a pot with one pint of water, and boil slowly for half an hour, stirring and skimming the mixture as it boils. It should come up on the table dry and gritty, and perfectly white. [We have added a suggestion or two to Mr. Skinner.—Ed.]

INDIAN MUSH.—This is made in different ways; but the easiest mode is that which resembles the making of starch or Arrow-root. Thus: put five pints of water over the fire in a pot or skillet, then take one pound of Indian meal, well sifted from the bran, and mix with a little cold water, so as to make a thick batter—add salt. As soon as the water boils, add the batter; stir it well, and keep it stirred and boiling for at least twenty minutes. It should be about the

consistence of *Hasty Pudding*, *Porridge*, or *Stir-about*, and may indeed be made in the same way. Take it up, and eat it with milk, butter, sugar, or treacle.

In this form it can easily be made and distributed to the poor from soup houses. Benevolent individuals, too, might prepare the *mush* in their own kitchens, and give it to the hungry and destitute. This is the most manageable and convenient of all the preparations of maize; it is used daily in a large number of American families, and considered a most wholesome diet. What is not used at one meal, is cut into slices, and fried or heated upon the gridiron at the next meal, and eaten with butter or treacle.

It is proper to state, that many of these receipts are differently prepared in different parts of the country; but in selecting the above, I believe I have chosen the most popular forms in use.

A proper seasoning with *salt* is necessary in all cases.

The meal should be carefully sifted from the bran; and the bran, after being scalded, is excellent food for pigs and poultry.

Of the different receipts given above, the most easily prepared are the *Mush*, the *Johnny* and *Hoe cakes*, and the *Ash cake*. The latter can be cooked with great facility in the turf fires common in Ireland.

In all cases the article must be well and thoroughly cooked, or it will not be nutritious or digestible.

The third pamphlet is an interesting one, published the present year. It gives us a history of Indian Corn, prepared for the American Institute.

About the derivation of the term *Maize* there is some uncertainty. It is cultivated in Mexico, U. States, West Indies, and South America; Spain, Portugal, Lombardy, and Southern Europe; in India, China, Japan, Australia, Sandwich Islands, Azores, Madeiras, Caparies, etc.

It has long been disputed whether maize were of Asiatic or American origin. Certain it was found everywhere on the discovery of this continent. In Florida, in Granada, in Peru, it was an article of common food, as well as in Mexico. Captain John Smith described it among the Virginia Indians. Maize was introduced into Europe soon after the discovery of America. Cobbett at last prepared a work upon the subject, which made some one observe he was "corn mad, having written about Indian Corn, planted Indian Corn, raised Indian Corn, made paper of Indian Corn husks, ate Indian Corn, and printed a book from Indian Corn paper."

There is a variety of Indian Corn produced in the United States, according to Mr. Browne, viz.: **THE YELLOW CORN**—Northern Yellow-flint Corn, from the Sioux Indians of Canada; King Philip; Canada Corn, or eight rows yellow; Dutton Corn; Southern big yellow Corn. **THE WHITE CORN**—Rhode Island flint; Southern big white flint; little white flint; Dutton white flint; early Canadian white flint; Tuscarora; white flour Corn; Virginia white gourd seed; early sweet or sugar Corn, or Pappoon Corn. There are also blood-red corns, &c., &c.

We shall conclude our present discursive paper with a few extracts from the remarkable poem, in three cantos, written in 1793, by Joel Barlow, Minister Plenipotentiary to France.

The poet invokes the muse to aid him in his high flight of fancy:

Assist me first with pious toil to trace,
Through wrecks of time thy lineage and thy race;
Declare what lovely squaw, in days of yore
(Ere great Columbus sought thy native shore),

First gave thee to the world; the works of fame
 Have lived indeed, but liv'd without a name.
 Some tawny Ceres, goddess of her days,
 First learn'd with stones to crack the well-dry'd maize,
 Through the rough sieve to shake the golden show'r,
 In boiling water stir the yellow flour—
 The yellow flour, bestrew'd and stirr'd with haste,
 Swells in the flood, and thickens to a paste,
 Then puffs and wallops, rises to the brim,
 Drinks the dry knobs that on the surface swim;
 The knobs at last the busy ladle breaks,
 And the whole mass its true consistence takes.

Having received the desired inspiration, he seizes upon his subject:

Thy name is *Hasty Pudding*! thus our sires,
 Were wont to greet thee fuming from their fires;
 And while they argued in thy just defense
 With logic clear they thus explain'd the sense:—
 "In *haste* the boiling cauldron o'er the blaze,
 Receives and cooks the ready-powdered maize;
 In *haste* 'tis served, and then in equal *haste*,
 With cooling milk, we make the sweet repast,
 No carving to be done, no knife to grate
 The tender ear, and wound the stony plate,
 But the smooth spoon, just fitted to the lip,
 And taught with art the yielding mass to dip,
 By frequent journeys to the bowl well stor'd
 Performs the hasty honors of the board."

Now follows the whole process of cultivating corn, which is beautifully seen from the incipient procedure of breaking in the ground, through all the nice attendance. We see the fields waving before us in luxurious splendor, with their silken fringes and tassels:

When now the ox obedient to thy call,
 Repays the loan that fill'd the winter stall,
 Pursue his traces o'er the furrow'd plain,
 And plant in measur'd hills the golden grain.
 But when the tender germ begins to shoot,
 And the green spire declares the sprouting root,
 Then guard your nursling from each greedy foe,
 Th' insidious worm, the all-devouring crow.
 A little ashes, sprinkled round the spire,
 Soon steep'd in rain, will bid the worm retire:
 The feather'd robber with his hungry maw
 Swift flies the field before your man of straw,
 A frightful image, such as school-boys bring
 When met to burn the pope, or hang the king.

Thrice in the season, through each verdant row
 Wield the strong plough-share and the faithful hoe—
 The faithful hoe, a double task that takes,
 To till the summer corn, and roast the winter cakes.

Slow springs the blade, while check'd by chilling rains,
 Ere yet the sun the seat of Cancer gains;
 But when his fiercest fires emblaze the land,
 Then start the juices, then the roots expand;
 Then, like a column of Corinthian mould,
 The stalk struts upward, and the leaves unfold;
 The bushy branches all the ridges fill,
 Entwine their arms, and kiss from hill to hill

Here cease to vex them, all your cares are done;
 Leave the last labors to the parent sun;
 Beneath his genial smiles the well-dress'd field,
 When autumn calls, a plenteous crop shall yield.

Now the strong foliage bears the standards high,
 And shoots the tall top-gallants to the sky;
 The suckling ears their silky fringes bend,
 And pregnant grown, their swelling coats distend;
 The loaded stalk, while still the burden grows,
 O'erhangs the space that runs between the rows;
 High as a hop-field waves the silent grove,
 A safe retreat for little thefts of love,
 When the pledg'd roasting-ears invite the maid,
 To meet her swain beneath the new-form'd shade
 His gen'rous hand unloads the cumbrous hill,
 And the green spoils her ready basket fill;
 Small compensation for the two-fold bliss,
 The promis'd wedding and the present kiss.

Slight depredations these: but now the moon
 Calls from his hollow tree the sly racoon;
 And while by night he bears his prize away,
 The bolder squirrel labors through the day.
 Both thieves alike, but provident of time,
 A virtue, rare, that almost hides their crime.
 Then let them steal the little stores they can,
 And fill their gran'ries from the toils of man;
 We've one advantage where they take no part—
 With all their wiles they ne'er have found the art
 To boil the Hasty Pudding; here we shine
 Superior far to tenants of the pine;
 This envied boon to man shall still belong,
 Unshar'd by them in substance or in song.

At last the closing season browns the plain,
 And ripe October gathers in the grain;
 Deep loaded carts the spacious corn-house fill,
 The sack distended marches to the mill
 The lab'ring mill beneath the burden groans,
 And show'rs the future pudding from the stones;
 Till the glad house-wife greets the powder'd gold,
 And the new crop exterminates the old.

The last canto hurries us into the midst of the harvest season. This is so beautiful and characteristic, and brings back to our memory so vividly many a dear scene of the past, that we must even insert it entire. We have been at these huskings where the sounds of merriment and cheer rung for many an hour. Nothing could be livelier and more spirited. It is on occasions like this that much of the literature of our Southern negroes is engendered; we mean their songs, which have no little merit at times—at least, they are unique, original, and by no means unmelodious.

THE HUSKING.

The days grow short; but though the falling sun
 To the glad swain proclaims his day's work done,
 Night's pleasing shades his various tasks prolong,
 And yield new subjects to my various song.
 For now, the corn-house fill'd, the harvest home,
 Th' invited neighbors to the *husking* come;
 A frolick scene, where work, and mirth, and play,
 Unite their charms, to chase the hours away.

Where the huge heap lies centred in the hall,
 The lamp suspended from the cheerful wall,
 Brown corn-fed nymphs, and strong hard-handed beaux
 Alternate rang'd, extend in circling rows,
 Assume their seats, the solid mass attack;
 The dry husks rustle, and the corn-cobs crack
 The song, the laugh, alternate notes resound,
 And the sweet cider trips in silence round.

The laws of husking ev'ry wight can tell;
 And sure no laws he ever keeps so well;
 For each red ear a gen'ral kiss he gains,
 With each smut ear she smuts the luckless swains;
 But when to some sweet maid a prize is cast,
 Red as her lips, and taper as her waist,
 She walks around, and culls one favor'd beau,
 Who leaps, the luscious tribute to bestow.
 Various the sports, as are the wits and brains
 Of well-pleas'd lasses and contending swains;
 Till the vast mound of corn is swept away,
 And he that gets the last ear, wins the day.

Meanwhile the house-wife urges all her care,
 The well-earned feast to hasten and prepare.
 The sifted meal already waits her hand,
 The milk is strain'd, the bowls in order stand,
 The fire flames high; and, as a pool (that takes
 The headlong stream that o'er the mill-dam breaks)
 Foams, roars and rages with incessant toils,
 So the vexed cauldron rages, roars and boils.

First, with clean salt she seasons all the food,
 Then stews the flour and thickens all the flood
 Long o'er the sim'ring fire she lets it stand;
 To stir it well demands a stronger hand;
 The husband takes his turn; and round and round
 The ladle flies; at last the toil is crown'd;
 When to the board the thronging huskers pour,
 And take their seats as at the corn before.

I leave them to their feast. There still belong
 More copious matters to my faithful song,
 For rules there are, tho' ne'er unfolded yet,
 Nice rules and wise, how pudding should be ate.

Some with molasses line the luscious treat,
 And mix, like bards, the useful with the sweet.
 A wholesome dish, and well deserving praise,
 A great resource in those bleak wintry days,
 When the chill'd earth lies buried deep in snow,
 And raging Boreas drives the shiv'ring cow.

Blest cow! thy praise shall still my notes employ,
 Great source of health, the only source of joy!
 How oft thy teats these pious hands have press'd!
 How oft thy bounties prove my only feast!
 How oft I've fed thee with my fav'rite grain!
 And roar'd, like thee, to find thy children slain!

Ye swains who know her various worth to prize,
 Ah! house her well from winter's angry skies.
 Potatoes, pumpkins, should her sadness cheer,
 Corn from your crib, and mashes from your beer;
 When spring returns she'll well acquit the loan,
 And nurse at once your infants and her own.

Milk, then, with pudding, I should always choose;
 To this in future I confine my muse,
 Till she in haste some future hints unfold,
 Well for the young, nor useless to the old.
 First in your bowl the milk abundant take,
 Then drop with care along the silver lake
 Your flakes of pudding; these at first will hide
 Their little bulk beneath the swelling tide;
 But when their growing mass no more can sink,
 When the soft island looms above the brink,
 Then check your hand; you've got the portion's due,
 So taught our sires, and what they taught is true.

There is a choice in spoons. Though small appear
 The nice distinction, yet to me 'tis clear,
 The deep-bowl'd Gallic spoon, contriv'd to scoop
 In ample draughts the thin diluted soup,
 Performs not well in those substantial things,
 Whose mass adhesive to the metal clings;
 Where the strong labial muscles must embrace,
 The gentle curve, and sweep the hollow space
 With ease to enter and discharge the freight,
 A bowl less concave but still more dilate,
 Becomes the pudding best. The shape, the size,
 A secret rests unknown to vulgar eyes;
 Experienc'd feeders can alone impart
 A rule so much above the lore of art.
 These tuneful lips, that thousand spoons have tried,
 With just precision could the point decide,
 Though not in song; the muse but poorly shines
 In cones and cubes, and geometric lines.
 Yet the true form, as near as she can tell,
 Is that small section of a goose egg-shell,
 Which in two equal portions shall divide
 The distance from the centre to the side.

Fear not to slaver; 'tis no deadly sin,
 Like the free Frenchman, from your joyous chin
 Suspend the ready napkin; or, like me,
 Poise with one hand your bowl upon your knee;
 Just in the zenith your wise head project,
 Your full spoon, rising in a line direct,
 Bold as a bucket, heeds no drops that fall,
 The wide-mouth'd bowl will surely catch them all.

Art. IX.—FLORIDA.

ITS CLIMATE, SOIL, PRODUCTS, TEMPERATURE, HEALTH, ETC., ETC.

IN the last number of our Commercial Review the history of this interesting region was traced from the earliest period to the present time. So far as they could be obtained, we published the statistics of its progress and condition. Having to this time been disappointed in receiving an elaborate paper from some of its leading citizens who have promised it, though in daily expectation, we have concluded to present the one before us which emanates from a source deserving of high regard. Full, practical, minute and reliable information about Florida, its climate, soil, resources, population, etc., is just at this

time very much required, and will, we trust, be afforded us at an early day.

It will be remembered that in 1838, Dr. Henry Perrine, U. S. consul at Campeachy, addressed a number of interesting letters to government relating to the various species of tropical plants of great value, capable of being domesticated and yielding abundant returns in Florida. Some of them were addressed to the committee of agriculture in Congress. Dr. Perrine urged the establishment of a nursery for these plants in the peninsula of Florida, and argued enthusiastically for the ultimate effects upon that territory and the Union. A favorable report upon his memorial was prepared by Senator Lynn, of Missouri.

Without pausing to discuss the matters involved in this transaction, it is sufficient to note some of the points that were chiefly urged. It was stated that the tenderest plants of the tropics would flourish in Florida; that this unimproved territory will sustain productive plants for food, medicine, and art, which grow in air, water, on rocks or trees, in marshes or moving sands; that the tropical regions may be improved for all species of vegetation. Of plants to be introduced, is mentioned caoutchouc, or Indian rubber; the cochineal nourishing species of prickly pear and others; the fibrous agaves, yielding sisal hemp; tea plant, which will thrive in the arid soils of the tropics, and might be produced profitably at one half the rates levied on foreign teas; mulberry tree, of Manilla; indigo, already a wild plant; the grape vine of Campeachy, which on the poorest calcareous soils of Florida might yield fruit to ripen in every month of every year; coffee, tobacco, sugar, black pepper, pimento, cloves, cinnamon, ginger, pine-apple, medicinal roots, etc., etc. Whatever may be thought of Dr. Perrine's view in relation to Florida, whether wild and impracticable, or capable of being at all carried out, one thing is very certain, his letters are most interesting and full of material. We present his tables of temperature and rain, from many observations:

TEMPERATURE.

	Key West. Mean.	Havana. Mean.		Key West. Mean.	Havana. Mean.
January	69	71	July	82	80
February	70	75	August	81	80
March	73	77	September	77	79
April	75	78	October	74	75
May	79	81	November	70	73
June	81	81			

January 28-29, 1836, coldest night ever known, thermometer falls to 44 degrees; the greatest heat is 90 degrees.

FALL OF RAIN.

	New Orleans.	Key West.
Four years	47.35	31.389

But we give the paper promised in the opening paragraph:

The climate of East Florida will be considered in this place, only in so far as relates to the vegetable productions. In this respect it has been spoken of in extravagant terms, from which it might be supposed that every kind of vegetable growth, indigenous to all regions between Hudson's Bay and Cape Horn, flourish alike, side by

side, spontaneously. But the climate has been praised, in an especial manner, as proper for all the tropical staples and fruits. A Mr. Carver is quoted by one writer, as saying: "So mild is the winter that the most delicate vegetables and plants of the Carribee islands experience not the least injury from that season;" and a Mr. William Stock is made to say, "This country will produce all the tropical plants and staples by the side of those belonging to a northern climate." It is proposed to notice the winter climate of East Florida.

In the year 1765, John Bartram states, that "on the 3d of January, being on the St. John's river, north of Lake George, the thermometer was at 26° wind N. W., the ground was frozen an inch thick on the banks; this was the fatal night that destroyed the lime, citron, and banana trees in St. Augustine." Williams says: "In 1774, there was a snow storm, which extended over most of the territory. In February, 1822, the cold was so intense in West Florida, that all the fruit trees were killed to the ground; but this season was comparatively mild in East Florida. On the contrary, East Florida suffered exceedingly from a violent frost on the 6th of April, 1828; on this bitter night crops of cotton, corn, and fruits were all destroyed. The thermometer at Six Mile Creek, on the St. John's, stood at 27°, and the ice made an inch thick. The crops of corn and cotton were cut off as far south as Tomoko. During the month of February, 1835, East Florida was visited by a frost, much more severe than any before experienced. A severe north-west wind blew ten days in succession, but more violent for about three days; during this period the mercury sank seven degrees below zero. The St. John's river was frozen several rods from the shore, and all kinds of fruit trees were killed to the ground; many of them never started again, even from the roots. Frost is felt at some seasons in every part of Florida, though not usually below latitude 27°." Vignoles says: "The nipping of the white frost is occasionally felt so far as the extreme capes of Florida, though not an annual visitant." Below the lowest degrees, in the years mentioned, at several points on the peninsula are given. In the years omitted, no observations have been published:

St. Augustine, lat. 29° 50'; 1826, 33°; 1828, 30°; 1830, 30°; 1841, 24°. Pilatka, lat. 29° 38'; 1840, 28°; 1841, 27°. Fort King, lat. 29° 12'; 1841, 22°. Farry gives the annual range of the thermometer at Fort King, as follows: max. 105°, min. 27°, range 78°. Tampa, lat. 27° 48'; 1826, 28°; 1827, 26°; 1828, 40°; 1829, 28°; 1830, 30°; 1840, 38°; 1841, 30°. Sarrasota, lat. 27° 20'; February, 1841, 30°.

From the above, it is evident that the coast of Florida has a much milder climate than the interior; for Fort King, which is more than half a degree south of St. Augustine, has nevertheless a much more severe climate, as will be still farther shown. In February, 1841, the frost was so severe on Pease Creek, in lat. 28°, for several nights in succession, that thick ice was formed, and the horses' hoofs clattered on the frozen ground as loudly as at the North in the severe cold of November. No observations were made with the thermometer. This frost must have extended several miles lower, or at least to lat. 27°, as it is seen that on the western coast (in a milder cli-

mate), at Sarrosota (lat. $27^{\circ} 20'$), the thermometer was down to 30° . The Atlantic coast has also a much milder winter climate than the Gulf coast, as is evident from the following table, which shows the mean annual range of temperature at the permanent military stations in East Florida :

	Max.	Min.	Range.
St. Augustine, Atlantic, lat. $29^{\circ} 50'$	92°	39°	53°
Fort King (interior), lat. $29^{\circ} 12'$	105	27	78
Tampa, Gulf, lat. $27^{\circ} 48'$	92	35	57

It appears, then, that the winter climate of the coast on the Gulf is more severe than that of the Atlantic coast, and that of the interior is more severe than either. The eastern coast is warmer in winter than the interior, in consequence, no doubt, of the Gulf stream passing northward through the straits of Florida. But whatever the cause, it is certain that the cold of the interior is much more severe than on the coast, and that the winter weather is colder on the western than on the eastern side of the peninsula. Scarcely a year passes at Tampa Bay without ice, and the bodies of the orange trees are all seared from the effects of the cold winds. I trust it has been made apparent that tropical fruits and staples will not flourish above lat. 27° , notwithstanding the stories of Mr. Carver, and the reports floating up and down in the writings of travelers and speculators; and Williams makes the parallel of 27° the limit for tropical productions.

It is only below the 27th degree of latitude (constituting South Florida "tropical" is a misnomer designed to mislead, for no part of the territory is within the tropics), if at all, that the tropical fruits can be raised in any degree of perfection. But a small part of South Florida is *entirely* exempt from frosts, except it be the southernmost islands and points, which are with very little exception, both dry and barren. The guava, plantain, banana, lemon, lime, citron, date, mango, cocoa, &c., can be raised in South Florida, and perhaps the pine-apple and some other West India fruits. But nearly the whole of South Florida is occupied by the everglades. "South of latitude 28° ," says a recent writer, "Florida consists of a vast morass, called the everglades." "That part of the Peninsula of East Florida," says Williams, "that 'lies south of the 28th degree of latitude, declines toward the centre in form of a dish, the border of which is raised toward the coast. This vast basin is filled with marshes, wet savannas, intersected by extensive lakes and lagoons, forming a labyrinth, which, taken together, is called the everglades.'" Behind Cape Florida it approaches within twelve miles of the coast, it then passes round to near Cape Sable, and up the western coast. All this country (not including the eastern coast of the peninsula), containing the district allotted to the Indians, has been officially pronounced by Gen. Worth as of no value; and the only part of the narrow belt of land surrounding the everglades, which is of the least consequence, is that on the eastern coast. On the narrow strip surrounding the everglades, allowing for the present that the southern and western portions of it are of some value, must be raised all the tropical productions of Florida. It can be seen by a glance at the map that the quantity of cultivatable land below the limit of black frost is small indeed. It is said that the everglades can be drained. It matters not; for if they

are, they will be as worthless as before, on account of their insalubrity.

Some space will now be devoted to the general productions of East Florida.

SUGAR, where the quality of the land will allow of its cultivation, is undoubtedly the most certain crop among the staples. Florida is superior to Louisiana for the sugar cultivation in this respect—the season is longer, which allows the cane to ripen higher before the occurrence of frost. Vignoles says: “It is perhaps the fact that the exhausting vegetation of this article may not allow a profitable planting of it upon the same lands, more than two or three years in succession; yet, as it may be raised on the pine lands, a change of fields is easy, and attended with but little comparative trouble; and by suffering the lands to lie fallow, or by a judicious succession of crops, it will not require a very extensive tract to establish a sugar plantation. Perhaps it may be thought that Florida presents but little to tempt the large sugar planter: granted, but it is undoubted that if the culture of the cane should be adopted on a small scale, the labor would be amply repaid.” The rich swamps and hammocks, after having been properly prepared, will doubtless raise sugar crops in succession, but the pine-lands will soon become exhausted and worthless, unless highly manured. The plantations of Generals Clinch and M’Intosh, near Fort Drane, which were never considered of inferior soil compared with Florida land in general, were exhausted at the time they were abandoned. Williams says: “All our *good lands* produce sugar-cane as well as any other crop, and it is more certain and more valuable, in most places. Besides, there can be no danger of glutting the market with sugar.” But he is in great error when he says that cane is cultivated with more ease than corn, because it does not require so much hoeing.

COTTON.—So many errors have been propagated in relation to the culture of this article, especially the Sea Island variety, that a more extended notice will be taken of it than would otherwise be necessary. Several months since, a writer in the *National Intelligencer*, with the signature of “A Physician,” made use of the following language; “It is now established beyond a doubt, that the Sea Island, or long staple cotton (the production of which has heretofore been confined to a few small islands in South Carolina and Georgia), will grow luxuriantly even in the very centre of the peninsula. A superior quality of this article has been produced on the Suwannee, and in the very centre of Alachua, as well as on the Eastern coast. This important fact is no doubt attributable to the almost *irregular* position of East Florida. The importance which the production of this valuable staple must give to East Florida, will be duly estimated when it is considered that it can be cultivated there without the fear of *competition*. The few islands in South Carolina and Georgia which yield this staple, are now so nearly worn out, that their average product per acre does not exceed one hundred and fifty pounds, and there is no other portion of the United States, with the exception of East Florida, where it *can* be produced. Neither can it be produced in Texas, in Egypt, or in India; and it is more than probable that there is in no part of the world a country of much extent, so well adapted,

both in climate and soil, to the production of this staple, as East Florida. It is a fortunate circumstance, too, that the northern portion of East Florida, which is the least adapted to the production of tropical staples, is better suited than any other part of the territory to the cultivation of Sea Island Cotton." He says, in another place: "If we cultivate an acre of *second rate prime land* in Sea Island Cotton (a staple which grows everywhere in East Florida), the average product will be three hundred pounds, which, at the average price of twenty-five cents, will amount to seventy-five dollars, which exceeds the yield of South Carolina in this, its most valuable staple."

I deny that Sea Island Cotton can be raised in the interior of East Florida at all. Now for my authority. Williams, the eulogist of Florida, whose testimony is therefore the more valuable for my purpose, says: "Sea Island Cotton is peculiarly adapted to our sea-coast and islands, and although good crops may sometimes be made at some distance in the country, yet they are uncertain, and always degenerate in proportion to their distance from the sea. Our islands and coast are made up of the debris of sea shells, a small portion of clay and vegetable matter, with a large portion of silicious sand. The larger the proportion of vegetable matter and clay, the larger is usually the crop of cotton, but the less of these matters contained in the soil, the finer and more glossy will be the staple of the cotton, and no kind of manure has been found that will increase the quantity, without, at the same time, injuring the quality of the cotton, except it be sea-weeds, or marsh mud." The best planters do not average more than three acres of cotton to the hand. The best lands will produce, in good seasons, one bale to the hand, but in general half that quantity can be depended on. The value of this crop depends, more than any other, on the manner in which it is handled and put up for market. The crop is liable to many accidents. The caterpillar sometimes destroys whole fields in one night. The red bug pierces the pod and discolors the cotton, and heavy winds destroy the pods; besides, it is a tedious crop to clear and prepare for market. It ought never to be cultivated on lands that will produce sugar or tobacco, but to be confined to light hammock lands within the range of the sea breezes. The Mexican, a green-seed cotton, is still cultivated in the country. High oak land is the only kind which produces this crop to advantage, and at the price now given, it does not, in Florida, pay the expense of cultivation.

SEA ISLAND COTTON can perhaps be cultivated on a few of the Florida islands, and on a narrow strip of land on the Eastern coast, about Indian river. This remains to be determined. It cannot be raised in the other parts of the territory, and least of all in the northern portions of East Florida, which are the least adapted to the production of Florida staples. It cannot be raised in the very centre of the Peninsula. In the cotton market, Florida and Upland cottons are always classed alike, and as bringing about the same price. I do not believe that the "*second rate pine lands*" will produce "an average of three hundred pounds" of any kind of cotton "per acre." Williams says that "the best lands will produce, in good seasons, one bale to the hand, but in general, one-half that quantity can be depended upon," and that "the best planters do not average more than

three acres to the hand." From the "best land," then, in "good seasons," according to Williams, one acre will produce 150 pounds (allowing the bale to contain 450 pounds), which, at 9 cents per lb. (a high price), amounts to \$13 50. Allowing 600 pounds to the bale, the product of one acre (200 pounds) is \$18. Even if we allow the whole 300 pounds per acre, the product will amount to only \$27, and at 8 cents (a fair price, a great one though), to only \$24, instead of \$75, as set forth by "A Physician." Any one may see by the price current for the last two or three years, that Florida cottons have brought only 7½ and 8 cents. So much for Florida Sea Island Cotton, which cannot be raised in the interior, and on but a small portion of the coast, if at all.*

COTTON AND THE COTTON TRADE AND MANUFACTURE.

WE have been endeavoring to collect everything that could be obtained upon these subjects, and during our stay at the North shall examine with much care the various manufacturing communities which have grown up and are extending in wealth.

The Southern States would not seem to be as yet fully alive to the subject. Georgia has, however, evidenced an enterprise of late in this particular, which must soon put her far ahead of her sister States unless they imitate her example. The city of Charleston promises some good results; a large manufacturing company having been formed, all the stock of which we learn was readily taken. We have already referred to Alabama, and given the promised sketch of its thriving town, Prattsville. Tables showing the statistics of all these States are in preparation, and will soon be published by us. Those for Georgia were kindly furnished by Prof. McCay, of the University, but are at this moment mislaid. We are greatly indebted for his kindness.

In relation to cotton culture the following letter from a leading gentleman in Tennessee, John Pope, Esq., has been politely furnished us.

CULTURE OF COTTON.

To J. D. B. DE BOW, Esq.:

There is probably no subject of practical agriculture that will be found on investigation to challenge in the experience of those engaged in its culture such varied and contradictory results as cotton. There is less perceived uniformity of practice observed in the culture of the cotton plant, than in that of any other agricultural staple—and yet with all this diversity of cultivating process, there is no other staple that generally yields such profitable results, exhibiting at the same time an extraordinary adaptation to every variety of soil and climate. So that in your inquiries on the subject, any peculiar mode of culture should not constitute so important an item of investigation, as the ascertainment, if possible, by an appeal to the researches of intelligent planters, of the origin of the whole tribe of destructive insects that habitually infest the cotton crop—I allude particularly to the spring insects called *lice*, that are found to prevail more fatally and in-

* The statements above made, in relation to Sea Island cotton, have been contested by a gentleman in Leon county, Flo., who asserts that in Hamilton and Columbia counties up to the Georgia line, the planters raise Sea Island cotton exclusively, and have done so for eight or ten years. Some of these cottons sold in the Charleston market at 35 cents, Uplands ranging about 15 or 16 cents. Six acres in Leon county yielded 1,098 lbs. clean cotton, at 20 cents, when Uplands were only 10. Thirty acres yielded 3,660 lbs. of white cotton—500 lbs. stained, which was roller-ginned, and sold in Liverpool for 11½d. 200 acres promised a crop of 35,000 to 40,000 lbs. clean cotton, but from a bad season, caterpillars, &c., yielded but 14,422 lbs., which sold in Liverpool at 13d. to 14d. The force that raised this cotton produced, in addition, 3,000 bushels corn, 10 acres sweet potatoes, 10 bbls. sugar, 500 gallons syrup, several hundred bushels turnips, 11,557 lbs. pork, and 120 lambs for market. Sea Island cotton has also been raised in Jackson, Jefferson, Madison, Gadsden and Duval counties.—Ed.

variably, irrespective of climate, than any other enemy to the plant. And I venture to assert, that there is no problem in the *modus operandi* of the crop, that will elicit more perplexing controversy. For the last few years I have devoted much anxious and minute attention to the prevalence of this class of insects, with the view to satisfy myself about their origin, and consequently to be enabled to devise some preventive to their recurrence. The result of my observations enables me to assert that no kind of weather nor peculiarity of locality is any guaranty against their existence—and that sudden vicissitudes in the season, a few weeks after the plant gets up, are most favorable to their production. It may also be asserted that they are inherently peculiar to the cotton crop, inasmuch as they are never seen invading any other vegetable growth. There are two opinions most current among the planters as to their origin. The one attributes their existence to some flying insect, that deposits the *larvæ* on the under side of the leaf of the plant—the other holds that famous little model of industry, the ant, responsible for the production of this mischievous nuisance, inasmuch as they are always found existing contemporaneously. I am much disposed to acknowledge myself the advocate of the latter opinion, from the fact that though I have always observed them existing together, I have never detected the ant playing the part of depredator on the lice. An entomological experiment, exposing the procreation of the ant, could at once settle the question. But let either one of these theories be verified by experiment, yet the important desideratum is presented, what remedy or prevention can be devised for this mischievous enemy to our cotton crops? It has recently occurred to me, that inasmuch as plaster of paris has proved a specific for the Hessian fly in the wheat crop of the North, may it not also prove a valuable remedy in the hands of the cotton planters, either by rubbing the seed previously to planting with it, or by using it as a top-dressing to the plant, at the time it is most liable to the ravages of this insect. At any rate, I shall make an experimental test of it in my crop the next season. I would call your attention to another somewhat novel opinion recently advanced on intelligent and practical authority, that the cotton plant is destined to a decided, though gradual improvement in its productive qualities, as it recedes from what has hitherto been considered its favorite climate to a higher latitude—an opinion that is doubtless based on the fact that the cotton crop north of 34 degrees is comparatively exempt from the *desolating* ravages of the worm and caterpillar, so prevalent farther south—and should time continue to verify this opinion, an auspicious influence on the cotton market must necessarily follow, from the decreased production of the article.

THE COTTON CATERPILLAR.

From Philip Winfree, Esq., Mulberry Creek, Iberville, La.

To J. D. B. De Bow, Esq.

I have read with attention Dr. Gorham's essay on the cotton worm. It might be considered presumptuous in me to dispute any of his statements, from his superior scientific knowledge; but my having been a practical cotton planter for the last fifty years, and one not totally devoid of observation, I hope will be an excuse with you, with him, and with the public, for correcting a few errors that he has fallen into.

We had the worms in great abundance last year, and consequently the doctor thinks we shall have none this year, or if any, not before cotton leaves have attained their full maturity ("greatest maturity" are his words), and then goes on to confute some erroneous writings on the subject. Now, like the Yellow Fever, they would be more likely to return, if no occurrence happened, if no remedy was applied, or means taken to avert both the one and the other. The same local causes which induced the yellow fever one year, would continue to induce it the next, if not removed or rendered innocuous by some means, either natural or artificial. So would the *chenielle* (the distinctive name of the caterpillar under consideration). I agree with the doctor that we are not likely to suffer by them this year, but from very different causes to those he mentions. It is to the *ants* that we are indebted for making any cotton in this country; they are the great enemies to the *chenielle* as well as other insects. The assistance from the *ichneumon* is very feeble. Whenever the *chenielle* or other caterpillars appear in large numbers, the ants increase in ratio, from the quantity of food afforded them by these insects. On the first year's appearance of the worms, the ants are thin, but few in number; but the next year they are very numerous, and compose an *army* too strong for the Doctor's *army* worm. These insects always begin their depredations in small numbers, and when they are not checked or destroyed, go through all their different metamorphoses in twenty-eight days or one lunar month, each fly or moth depositing eggs, which produce fifteen hundred to three thousand worms, as was completely verified and proved in my presence, about fifty years ago, by an intimate friend of mine. The doctor is wrong in his statement, that 1820 was the first year of the appearance of this insect in Louisiana. I came to the parish of Iberville in 1806, and the cotton fields had been laid waste by them a year or two before. What forcibly impresses this upon my mind is that the inhabitants had applied to their priest, Father St. Pierre, for holy water, to drive them away; and, I must add, in justice to Mr. St.

Pierre, that he told them it would have no effect, but gave them the holy water at their earnest request.

Doctor Gorham thinks we receive the stock from Mexico or South America. If this were the case, it must be in the moth or fly state that the chrysalis is fixed and immovable, and, according to his own showing, the army are easily arrested in their progress, and never reach any existence; the fly, too, it has been noted by hundreds of persons, can only keep on its wing for a few yards, but must alight and rest; a much smaller stream than the Mississippi would stop their progress, and drown them all; they are doubtless indigenous. As to how the stock is preserved through the winter, and for years, I believe no one knows. Their appearance is equally as irregular in the West Indies as here, and from what I have seen of them in the Bahamas, they are much more at home here. On clear, hot days there, they can only feed at night, or early in the morning, or late in the afternoon; I have seen them drop dead from the leaves there, when they have remained too long on bushes, from the heat of the sun: and I have also seen them killed there in immense numbers by the little cold, caused by a north or north-west wind in October or November: here I have seen them feed all day in July and August, with the thermometer five to ten degrees higher, and I have seen them also feeding on leaves covered with frost—the identical same striped caterpillar. These worms first made their appearance in the French West India Islands; the inhabitants called them *chenielle*, and hence the general name for this peculiar worm. In 1814, or thereabouts, the *chenielle* made their appearance in great numbers early in June, in Iberville, and ate our cotton close down to the ground. Cotton was then planted in April, and the main stems were so tender, that the worms ate them up. The doctor is mistaken in saying that these worms feed upon cotton bushes alone, for this very year they fed first upon the young tender crab grass, and ate the whole of it up before they attacked the cotton, and in the West Indies they feed promiscuously upon the leaves of a plant, there called the *salve bush*; this plant grows about the height, and the leaves are a good deal like the mullein of this country, having a whitish color, and thick, soft velvety feeling.

Can the doctor tell us how it happens that the tobacco worm finds out every plant of tobacco, scattered in nooks and corners, far from tobacco plantations, and on the first year of planting it? Is it not possible that the same species of worm feeding on different plants may change its appearance?

In the year above mentioned, the *chenielle* made their appearance simultaneously in Iberville, and adjacent parishes, and at Colonel Thomas's, on the Bayou Barbara, situated ten miles, on a strait line, from any other plantation. As to the means of destroying them, except by their natural enemies, I conceive we have only one or two ways, and these very equivocal. Their propensity to fly into a light at night is known to every one, where they exist in the fly-state. By kindling blazing fires at night, at a proper distance apart, and keeping them burning briskly, from eight to ten o'clock at night, immense numbers are destroyed. (This is their principal time for flying about, and they will travel about three acres to a fire.) The fly ought to be watched, and as soon as they leave the chrysalis, and before they deposit their eggs, these fires ought to commence. I have known some good result from this, and if the measure had been followed by all the neighboring planters I make no doubt but that nearly the whole crop would have been saved. We might do some good by sending all hands into the field and crushing them while in the chrysalis state; but it would be tedious work to destroy them in this way: we could hardly afford the loss of time from other work; fires can be made with much more facility.

COTTON PLANTING IN OUACHITA.

We are indebted to a cotton planter of Ouachita, now occupying a distinguished post in the country, for a copy of a very valuable paper prepared by him, and exhibiting many particulars in the management of a successful cotton estate for a series of years. Papers of this kind have great value, and if any number of such could be procured, say from planters in every district throughout the cotton region, we should be able, from their comparison and from deductions and inferences, to make up and publish results, no doubt the most striking and important. But it is almost impossible to induce the planters to preserve such records, or to furnish them to those who would make the proper application.

One Ouachita planter deduces five principles from his facts and observations: 1. That the cotton crop cannot be much increased in the United States: 2. that the crops of Ouachita, though not large, have, for a series of years, averaged more than in most other places, being one bale to the acre for eight years, and in 1846, two-thirds bale to the acre, while one-fourth to one-tenth was made on the other best soils in the State: 3. that the proceeds of the cotton crop are not in proportion to quantity: 4. that the caterpillar is likely to be much less injurious so far north as Ouachita, they never having done serious mischief there before 1846.

Table showing the production of Cotton, its price, &c., on an estate in Ouachita, for eight years, with the amount of supplies purchased.

Date.	No. of bales.	Price.	Net proceeds.	Average per bale.	Woolen, Negro clothing.	Cottons.	Pork used.
					yards.	yards.	bales.
1839.....	451	5½ @ 8½	12,386	28.00	750*	1,250†	75½
1840.....	451	9 @ 12½	14,720	37.50	750	1,250	75
1841.....	334	7 @ 9½	10,338	30.33	750	1,250	75
1842.....	509	4½ @ 7½	12,057	32.33	750	1,250	75
1843.....	389	5½ @ 9	12,149	31.00	820	1,600	80
1844.....	395	4½ @ 6½	8,345	21.00	820	1,600	80
1845.....	478	6½ @ 7½	13,630	28.00	820	1,600	80
1846.....	332	10 @ 11	14,474	43.50	820	1,600	80
Total.....	3,282		98,299	31.40	785 av.	1,425	77

It will be seen from the above table, that the average amount of cotton raised during the eight years, was 415 bales; average price, 9½ cents per pound; average proceeds per year, \$12,289; average per bale, \$30.39. The weight of the bales was 400 to 450 lbs. The land cultivated was increased from 400 acres in 1839 to 550 in 1846. The number of slaves was not augmented more than two or three during all the time by purchase, and the land was rather improved by ditching than exhausted.

VALUE OF COTTON CROP.

From a paper prepared by Mr. Henry of Mobile.

The crop of 1844, the largest we ever made, was 2,400,000 bales, weighing on an average 440 lbs. each. It was sold at an average of 4½ cts. per pound, which amounted to \$50,160,000. The latter part of that and part of the following year was one of our most gloomy periods, as all our hopes of a check to production were mere hopes. The crop of 1845 was 2,100,537 bales of 440 lbs., sold at 6½ cts. per lb., amounted to \$62,385,000. The crop of the past year, in bales, will be about 1,780,000, and allowing at each port the same weight to their bales for this as last year, their average is 428 lbs.; but if the proportionate falling off in weight elsewhere equals what it appears to be at this port (13 lbs. a bale), the average would only be about 416 lbs. But let us call it 420, and at 420 lbs. it would only make 1,697,722 (a few thousand less than my estimate of December last, which was 1,700,000), and this crop, sold at an average of 10 cts., produces you \$74,760,000. Let me recapitulate:

1844	- - -	2,400,000 bales at	4½ cts.	- - -	\$50,160,000
1845	- - -	2,100,537 "	6½ cts.	- - -	62,385,000
1846	- - -	1,697,722 "	10 cts.	- - -	74,760,000

The result is amazing; and do these figures not address themselves to the minds of planters in unbounded force, and in the most urgent as well as persuasive voice, entreat them to nurse and cherish, and not destroy their lands? for those lands and our climate are more precious than mines of gold. And do we not see that we have the strongest imaginable inducements to enter upon other enterprises? Throughout the South, and especially Alabama, the best water power for cotton factories and most valuable minerals abound. Several railroads are projected that would be profitable, and the chartering of some good stock banks is promised us by all parties. Strike out new modes of investment, and take the lead yourselves in it, and your interest will be doubly promoted.

PROFITS ON CAPITAL IN COTTON PLANTING.

Now I come to a survey of the yield of the cotton planting interest. I was forming estimates and averaging them, of what amount of capital was thus engaged, when I fell on that of the Secretary of the United States Treasury. He estimates the capital employed in cotton planting at NINE HUNDRED MILLIONS OF DOLLARS. I presume it will amount fully to that. Let us see the product of the crop of 1844 (say 2,400,000 bales), on this capital. The crop you observe, as noted above, sold for \$50,160,000 gross, which is a fraction over 5½ per cent. gross. The crop of this year yields \$74,760,000, which is about 8½ per cent. gross, and in either year falls immensely below what is considered the smallest yield on capital otherwise invested. Fifteen per cent. on \$900,000,000 would be \$135,000,000. The calculation is easily made that a crop of 2,000,000 bales, of 420 pounds each, to bring \$135,000,000, should sell at 16 cts. per pound; or a crop of

* Linsey from 30 to 50c. per yard.

† In addition to what was raised in the place.

† Lowells from 12 to 30.

2,200,000 bales of the same weight, at 14½ cents. You must not understand it as my opinion that you will get such prices. I scarcely hope for such, but I present them to show how the account stands. I know that after this year there must arise in the aggregate an enormous sum of surplus money among the cotton planters, and I have ventured these remarks that they may begin to adopt measures for its employment, which will do the whole country good, and tend rather to increase their wealth and enhance prices than to reduce them to nothing again.

ESTIMATED CROP AND PRICES, 1847-48.

Were I asked if prices would be pretty good next season, I should answer yes.

Were our crop to reach 2,200,000 bales,* I should say a range of from 10 to 12½ cents might be expected. If you make less you may get more, provided no false estimates of the crop are got up, such as some parties in Savannah made and promulgated, making the past crop 2,175,000. To these estimates, and some made in Charleston, I attribute the cause of a large portion of the best cotton of the Atlantic States being early hurried to market, which was bought up at 7½ a 9 cents. This, shipped to Liverpool, has had a serious influence on that market in prices, and from which I do not think they have fully recovered.

THE COTTON GIN.

From Professor Olmsted's able Memoir of Eli Whitney which has lately come into our possession, we extract a remarkable passage.

The pecuniary advantage of this invention to the United States is by no means fully presented by an exhibition of the value of the exports of cotton (amounting to more than \$1,400,000,000 in the last forty-three years), nor by the immense proportion of the means which it has furnished this country to meet the enormous debts continually incurred for imports from Britain and the European continent—cotton having for many years constituted one-half, three-fifths, or seven-tenths of the value of the exports of the Union. But it was the introduction of the cotton-gin which first gave a high value and permanent market to the public lands in the South-west. The rapid settlement and improvement of almost the entire States of Alabama, Mississippi, Louisiana, Florida, and Texas, is mainly due to the enlarged production of cotton, consequent upon the invention of Whitney. The States of Georgia and Tennessee have also been largely benefited by the same means, in the disposal of their domain, a vast portion of which must have remained unoccupied and valueless but for the immense increase of facilities for the preparation of cotton for the market. In the three States of Alabama, Mississippi, and Louisiana, the sales of the public lands of the general government amounted to 18,099,505 acres, during the eleven years, ending on the 30th of June, 1844—yielding to the National Treasury more than \$30,000,000. The sales of upland cotton lands by the United States land-offices, have amounted to many tens of millions of acres; and none have been sold at a lower rate than \$1 25 an acre—a large proportion at a higher rate.

It is to be remarked, finally, that the cotton-gins now in use throughout the whole South, are truly the original invention of Whitney—that no improvement or successful variation of the essential parts has yet been effected. The actual characteristics of the machine (the cylinder and brush), the sole real instruments by which the seed is removed and the cotton cleaned, REMAIN, in cotton-gins of even the most recent manufacture, PRECISELY AS WHITNEY LEFT THEM. The principle has not been altered since the first cotton-gin was put in motion by the inventor, though great improvements have been made in the application and direction of the moving forces, in the employment of steam-power, in the running-gear, and other incidentals. Every one of the various cotton-gins in use, under the names of different makers, contains the essentials of Whitney's patent, without material change or addition. The brush and the cylinder remain, like Fulton's paddle-wheel, unchanged in form and necessity, however vast the improvements in the machinery that causes the motion.

ANALYSIS OF THE COTTON PLANT.

At the Farmers' Club of New York, the Hon. Dixon H. Lewis, of Alabama, remarked that the seed of the cotton made rather more than ⅓ of the plant, and every 1200 lbs. gives 350 clean cotton. "The Club, in accordance with his suggestion, resolved upon having prepared a complete and perfect analysis of the stalk, boll, fibre and seed of the cotton plant." The analysis hitherto made by Dr. Shepard, extended only to the wool and seed. The results as we have them are: one hundred parts cotton wool lost 86.09 parts in a platina crucible, leaving a charred residuum, "which on being ignited under a muffle until every part of the carbon was consumed, lost 12.985 and left an almost purely white ash whose weight was 0.9247. Of this ash about 44 per cent. was found soluble in water.

* Mr. Henry estimates it at 2,150,000 as the very highest limit.

It contained 12.88 of sand an, adventitious product of harvesting. Deducting the sand, the constitution of the ash is obtained; and abstracting the carbonic acid as the result of incineration, Dr. S. shows that to constitute every 100 parts of the ash, the cotton plant will take from the soil the following important mineral ingredients:

Potassa (with possible traces of soda).....	31.09 pounds.
Lime.....	17.05 "
Magnesia.....	3.26 "
Phosphoric acid.....	12.30 "
Sulphuric acid.....	1.22 "

64.92

Or for 10,000 lbs. cotton wool there will be taken 64.92 lbs. of these elements.

A table corresponding with the one above is derived from experiments upon Cotton seed:

Phosphoric acid.....	45.35
Lime.....	29.79
Potassa.....	19.40
Sulphuric acid.....	1.16

95.70

In comparing the above table with that afforded by the cotton wool, a marked dissimilarity presents itself. The ash of the cotton seed is fourfold that of the fibre; while the former has also treble the phosphoric acid possessed by the latter, as will the more clearly appear when we present the analysis under another form, corresponding with the second table under cotton wool.

From the foregoing analysis, it would appear difficult to imagine a vegetable compound better adapted for fertilizing land than the cotton seed; nor can we any longer be surprised at the well-known fact, that soils long cropped with this staple, without a return to them of the inorganic matters withdrawn in the seed, become completely exhausted and unproductive.

Dr. Ure gave, in 1825, the following

ANALYSIS OF SEA ISLAND COTTON.

1. Matter soluble in water, sixty-four parts, consisting of

Carbonate of potash.....	44.8
Muriate of potash.....	9.9
Sulphate of potash.....	9.3

2. Matter insoluble in water,

Phosphate of lime.....	9.0
Carbonate of lime.....	10.6
Phosphate of magnesia.....	8.4
Peroxide of iron.....	3.0
Alumina a trace, and loss.....	5.0

100.0

EAST INDIA COTTON.

A paper lately read before the British Association, by Prof. Royle, on the statistics of the cotton trade.

In the Peninsula of India, the success in its production has been considerable. Cotton from this district may be landed in Liverpool at 3½d. per pound. Thirty-four bales of cotton have been sent from this district to Liverpool, valued at 6½d. a pound, and considered equal to "fair New Orleans." This after paying 3½d. for the expense of conveyance from the place of growth, leaves 3½d. for the grower.

In the Southern Mahratta country, especially near the Dharwar, the culture of cotton has attained complete success under Mr. Mercer, the "intelligent American planter." The climate here is considered by Mr. Mercer to be like that of South Carolina, and the seed he found returning to its original character. He also states that there is abundance of land fitted for cotton culture, and that nothing is required but a regular demand to have the land covered with cotton. Indian cotton is known to be possessed of certain good qualities, such as its color, the readiness with which it takes color in dyeing, and its great swelling in the process of bleaching. Both

the latter effects are probably owing to its being grown in a comparatively dry climate. The chief cause which has hitherto prevented the ready consumption of Indian cotton in the English manufactories is the *dirty state in which it is sent to market*.

The average price for upland American cotton for the 14 years from 1808 to 1821, was 15½d. to 24d. per pound. That of Indian or Surat 13½ to 18d.

The average of American for the 14 years ending with 1841, was 6½d. to 8½d. That of Indian 3½d. to 6½d.

In 1845 the average of American cotton was about 4½d. That of Indian from 2½d. to 3d. per pound.

The average export of Indian cotton for the five years previous to 1825 was 39,567 bales; that of 1844, was 233,438 bales; that of 1846 only 185,119 bales; but it would rise again in 1847.

COTTON MANUFACTORIES IN SOUTHERN STATES.

It is our intention to keep up this department. We have lately obtained this from Georgia, through the *Augusta Chronicle*. In the small village of Union there are four cotton factories in operation, one being built, as also a paper-mill.

"The Thomaston factory is owned by Messrs. Rogers & Turner. It has in operation 1,260 spindles, 16 cards, 24 looms, 50 operatives, and consumes 700 lbs. of cotton per day. The Flint River factory (Walker & Grant, proprietors) has 1,560 spindles, 16 cards and 26 looms. The number of operatives about 50—consumption of cotton 700 lbs. The Franklin factory, with 1,320 spindles and 16 cards; and the Wayneville factory with 1,568 spindles, 16 cards and 26 looms, employing 125 operatives, are both owned by Messrs. Perry, Respass & Co. The quantity of cotton required annually for the two is about 1,100 bales. In the Franklin factory wool-carding is also done. The fifth, not yet in operation, is owned by Messrs. McAlpin & Son of Savannah. The extent of its machinery is not stated.

A late number of a Pensacola (Florida) paper speaks of a cotton-mill at Arcadia, a neighboring village, worked by negroes. The machinery is moved by an ample fall of water, and with thirty-three or thirty-four young colored girls, six or seven colored boys, and two or three white overseers from the North, turns out some 5,000 yards of excellent domestic, weekly. The mill is in as fine order as any we have ever seen—the operatives all young, intelligent and cheerful. They are provided for at one table, and their looks do credit to their fare. They were selected, with care, for this establishment, and probably at an average cost of about \$400 each. The mill is owned by a small company of enterprising gentlemen, of this city and vicinity, and has been in operation but little over a year. As an experiment, we are happy to hear it has more than answered the sanguine expectations of its worthy projectors.

The application of negroes to cotton manufactures is by no means new, as the Pensacola paper seems to think. They have long been used in parts of Georgia; and Montgomery, who traveled through our country and wrote a book upon manufactures, tells us that there were several cotton factories in Tennessee operated entirely by slave labor, there not being a white man in the mill but the Superintendent. "The blacks do their work in every respect as well as the whites."*

AMERICAN STATES AND CITIES.

1.—NORTH CAROLINA, ITS RESOURCES, MANUFACTURES, ETC.

Our friend Alexander McRae, Esq., President of the North Carolina Railroad Company, was kind enough to furnish the following paper, prepared with some pains at our particular request. Gen. McRae complains of his having been baffled in obtaining information from most of the sources to which he had written, and that "he gives these detached items, since there is no possibility of making up a full and correct table."

In the State of North Carolina, there are at present in operation

* See also Gregg's Essays, p. 21.

- 25 Cotton factories,* running 48,000 spindles,† and 438 looms, employing 1,323 hands, and using about 5,600,000 pounds of cotton. The capital invested in these factories is about \$1,200,000.
 8 Furnaces for cast iron.
 43 Bloomeries.
 2 Paper mills, producing in value \$8,755.
 323 Flouring mills, producing 87,641 bbls. of flour.
 2,033 Grist mills, and 1,060 saw mills.
 46 Oil mills.
 353 Tanneries, producing 151,082 sides of leather, and employing a capital of \$271,797.
 In the fisheries on Albemarle sound, the capital employed is estimated at \$300,000. There are employed in these fisheries 5,000 hands who put up about 90,000 barrels of herrings, besides a considerable quantity of shad and rock fish.
 These fisheries give employment to 200 vessels, and use 100,000 bushels of salt.

PRODUCTS OF NORTH CAROLINA.

1,960,855 bushels of wheat.	2,820,388 lbs. of rice.
3,574 " " barley.	16,772,859 " " tobacco.
3,193,941 " " oats.	51,926,190 " " cotton.
213,971 " " rye.	17,163 " " sugar.
15,391 " " buckwheat.	3,014 " " silk cocoons.
23,893,763 " " Indian corn.	102,369 tons of hay.
2,609,239 " " potatoes.	9,880 " " hemp and flax.

There are 2,802 distilleries, producing 1,051,979 gallons.

MINES.

The State is rich in mines of gold, silver, copper, iron and coal; but it is not possible at present to obtain anything like correct statistics of their number or value.

In the May number of Commercial Review, 1847, we gave the commerce of Wilmington. It contains 10 steam saw mills, 4 planeing mills, 17 turpentine distilleries with 45 stills.

DISMAL SWAMP CANAL.

There passed through the Dismal Swamp Canal, from North Carolina to Norfolk, Va., from the 1st. Oct., 1846 to the 31st. July, 1847 (ten months),

Building shingles - - - - -	20,753,350
2 feet shingles - - - - -	732,390
3 feet shingles - - - - -	874,310
Total - - - - -	22,360,050
Hogshead staves - - - - -	4,881,640
Barrel staves - - - - -	284,520
Pipe staves - - - - -	90,090
Total - - - - -	5,256,350
Cubic feet of plank and scantling - - - - -	139,100
Cubic feet of timber - - - - -	43,685
Bales of cotton - - - - -	3,722
Barrels of fish - - - - -	47,386
" " naval stores - - - - -	30,505
" " spirits turpentine - - - - -	688
Cwts. of bacon - - - - -	4,366
Kegs of lard - - - - -	1,299
Bushels of corn - - - - -	1,261,099
" " wheat - - - - -	26,225
" " peas - - - - -	21,956

The Newbernian gives the following in relation to turpentine :

THE TURPENTINE BUSINESS.

We find the impression to be, that about 800,000 barrels of turpentine are now annually made in this State. The estimated value to the makers is about \$1,700,000 annually, and may be \$2,000,000. About four or five thousand laborers are engaged in making it, and perhaps three times as many more human beings are supported mainly from the proceeds of its first sale. It is supposed that there are now in operation about 150 stills, which, at an average cost of \$1,500, with fixtures, show that there is an ex-

* And three others in progress of construction.

† This item is no doubt below the mark.

penditure of \$225,000 to begin with, in the distilling of spirits of turpentine. The cost of distilling is very great, and when we reckon the cost of transportation, the profits of distillers, of ship owners, commission merchants, and the venders of the article abroad, it will be seen that the capital and labor employed is not only immense, but the numbers who are supported by the manufacture and sale of the article is astonishing. Perhaps there is no one article produced in this country by the same number of laborers, which contributes so much to the commerce and prosperity of the country as the article of turpentine.

2.—MASSACHUSETTS AND THE WEST.

At the great Internal Improvement Convention of Chicago, A. Burlingame, Esq., of Boston, observed:

"Massachusetts claimed to have saved by the firmness of one of her sons in Paris, in 1783, the whole country north of the Ohio, which it was proposed to surrender to Great Britain. A son of hers drew the ordinance of 1787, securing freedom to the country, and the means of education to all its children for all time to come, in the reservation of every 16th section of land for school purposes. A son of hers drew the bill which passed Congress three or four years since, extending the maritime law over the lakes. A son of hers first settled the great State of Ohio. She had furnished judges, governors, and eloquent members of Congress to the West. She had three articles of export—granite, ice, and men. Alas! of the latter she had exported too largely. He found them by every lake and river, on every hill and in every valley, and saw their white fences drawn like chalk lines over every prairie in the West. But he found them everywhere with hearts in their bosoms, which throbbed wildly at the mention of the 'Old Bay State.' They might for a time desert her principles and denounce her, but a still, small voice in their bosoms was saying, 'You love her still.' They could not forget her, though long ago their feet turned away from her rugged soil. Massachusetts recognizes a political relation not narrow in its extent. She believed a benefit due to one portion of the country was a benefit to the whole country. She believed, in the language of her great son, that we have 'one country, one constitution, one destiny.'

"But another and important relation was one of a commercial character. Boston, her capital city, early saw the importance of the commerce of the West. She had stretched out her iron arms to meet it. 1st, in the Western railroad. She owned a controlling interest in the New York and Erie railroad. She was now extending her strong right arm in the Ogdensburgh railroad—taking the trade of the Canadas and the West simultaneously. She had millions in the rivers of Ohio, and in the Central railroad of Michigan. In fact some of her delegates here present had come nearly every inch of the way, over mountain and river, on railroads owned in the city they were present to represent.

"Boston had long felt the life-giving influence of the Western trade; her docks had not been of granite; the lines of her buildings would not have swayed to those beautiful proportions we behold, but for this trade; and this it was that linked her fortunes with those of the West, and she was determined to draw still closer these ties. The eloquent gentleman from Georgia (Mr. King) said they were pushing an iron arm from his State, through the Cumberland to the Tennessee, to participate in this trade. Boston would meet them in the valley of the Mississippi with many arms. The people were warned in some quarters not to come here, for Boston would give a tone to the proceedings of this convention. He was sure it would be a moral, constitutional tone. It was said she had no right to be here. Who had a greater—who had more at hazard in the way of insurance on these lakes and rivers—who would have a larger stake in the property and money responding to the twenty-five millions of bushels of wheat now on its way, or to be on its way, to the Atlantic slope this year?"

3.—THE CITY OF NEW YORK.

The progress of the city of New York is one of the most remarkable features in the wonderful growth of the Western world. The origin of the city was purely commercial, and the increase of commerce has impelled and sustained its prosperity. The date of the discovery of the Hudson river was long a matter of dispute, being assigned by some to the year 1608, until it was finally settled at Sept. 3, 1609. Henry Hudson sold his title to the Dutch West India Company, and they formed a trading post in the same year. The English South Virginia Company assailed this settlement and broke it up in 1618. In 1620, however, James I. reinstated the Dutch, and establishments were formed for the purpose of supplying with water and provisions the vessels trading between Holland and Brazil—a curious fact in the navigation of those times. The settlement grew in importance and was erected into the province of New Netherlands in 1629, and so continued until 1664, when the English took forcible possession, and Charles II. transferred it to his brother the Duke of York, from whom it derived its present

name. In 1673 the Dutch re-conquered it, but ceded it by treaty again to the English in 1764. In all this time the place was simply a trading settlement, and in so far was totally unlike the cities and towns of New England, which were commenced as asylums for those expelled by oppression from home. The population at the time of the cession was 3,430, 343 dwelling-houses, and owned about twenty vessels, with some ten or twelve trading ships that belonged to the mother country. In 1750 the population reached 33,000; trade had considerably increased, and exports of Connecticut and New Jersey produce had become important; 80,000 bbls. flour, with other farm produce in considerable quantities, were sent to the West Indies. In 1755, some 15,000 hhds. flaxseed were sent to Ireland. The island presented no facilities for manufacturing, and the occupation of its inhabitants continued purely commercial. In 1800 the population of the city had grown to 60,489, and the resources of the city, which had begun to assume the character of a general market for the whole country, were brought into full operation by the active demand for produce that grew out of the continued war of Europe.

The war of 1812 seriously affected the prospects of the city, and materially checked its growth. Its recovery afterward was slow, until the construction of the Erie Canal in 1827, since when the progress has been rapid, as seen in the following table of population, trade and capital of moneyed institutions of the city, taken from official sources:

POPULATION, TRADE, AND MONEYED CAPITAL OF NEW YORK.

	1827.	1847.	Increase.	Decrease.
Population.....	171,220	392,000	220,880	.....
Imports.....	37,783,147	70,269,792	32,486,645	.....
Duties received.....	11,178,139	17,300,697	6,122,558	.....
Exports.....	22,309,362	37,493,483	15,184,121	.....
Registered tonnage.....	128,702	260,896	132,194	.....
Licensed tonnage.....	132,443	311,626	179,183	.....
Banks.....	16,100,000	24,011,760	7,911,760	.....
Insurance companies.....	17,450,000	15,886,700	.....	1,563,300
Other corporations.....	4,800,392	18,465,820	13,665,428	.....
Val. arrivals at Hudson river	4,180,000	51,105,256	46,925,256	.....

About the year 1827 a great and wild speculation in Insurance Companies had taken place, which resulted in an explosion, implicating Jacob Barker and the late Henry Eckford, who were persecuted out of the city by men that afterward became conspicuous in the paper bubbles of 1836-37. The insurance capital of 1847 is therefore less, but there are 17 outstanding charters of capital \$6,000,000, not included in the return of 1847. The imports of 1846 were not large, but are nearly double those of 20 years previous. The exports have increased 75 per cent. The registered tonnage represents the vessels engaged in foreign trade, and the licensed those in the coasting trade. The latter has increased in the greatest degree it appears. The value of produce coming down the Hudson has swollen the coasting tonnage and supplied the market for exports—as has also the increase of the cotton trade, which has been important. When the Erie Canal was built—it being before the era of railroads—a project was entertained of cutting another through Massachusetts, that Boston might derive the benefit of the western trade; and doubtless that would have been done but for the great natural difficulties in the way. Within the last few years the Western railroad has realized that project by a different means. New York will not, however, if proper enterprise is displayed, be seriously injured by any competition, but must continue to grow until the island at least is settled. From the space now occupied by the present number of inhabitants, it is probable that the island will hold 1,300,000, and will reach that number in 1877, besides the great spread of Brooklyn, Jersey City, &c. The progress of railroads and the incessant means of internal communication, simultaneously with enhanced liberality in relation to commerce evinced by all European nations, must give a great stimulus to the only means of the city's prosperity, viz.: commerce. As we have seen from its earliest settlement, it has depended solely upon trade, and its future growth depends upon the spread of its commerce. If that continues what it has been, within 30 years all the real estate on Manhattan Island will be covered with dwellings, and, as a consequence, double in value.

There is no reason why New York should not grow as rapidly as London, which has progressed as follows:

1801.....	864,898	1831.....	1,478,949
1817.....	1,009,548	1841.....	1,873,676
1821.....	1,225,338		

The city of London is situated 45 miles from the sea, in the midst of the most fertile counties in England. She has attained the vast population by her commerce and great enterprise, notwithstanding her distance from the sea; and when we compare the advantages of New York and reflect that London has added 873,676 to her population in 30 years, there remains no doubt but that New York will do likewise. A great element in the increase of New York commerce is the enhancement of her cash capital. The last ten years of large exports of produce has added wonderfully to her means in that respect.*

4.—THE CITY OF BOSTON.†

In 1638, eight years after its settlement, Boston was said to be rather a village than a town, consisting of no more than twenty or thirty houses. In 1675 the population was 4,000; 1690, 7,000; 1704, 6,750; 1720, 11,000; 1735, 16,000. Slaves, in 1754, 989, or one-sixteenth of population. In 1765 the inhabitants were 15,520; 1776, 2,719 whites, the rest having dispersed on account of the revolution; 1789, 17,880; 1790, 18,038; 1800, 24,937; 1810, 33,787; 1820, 43,298; 1830, 61,392; 1840, 85,000; 1845, 114,366. The annual average increase shown by the first six national censuses was 3.82, 3.54, 2.81, 4.17, 3.84; but the census of 1845 shows an increase of 7 per cent. per annum, during the last five years.

There are in operation 700 miles of railway radiating from Boston, having a capital of \$23,202,700, and having cost \$26,712,123 57.

RAILROAD BUSINESS DONE IN 1845.

Names.	Miles traveled.	Income.	Expenditures.	Div.
Eastern.....	218,583	\$350,149 55	\$116,840 00	8
Maine.....	194,946	287,063 10	154,099 95	7
Lowell.....	175,537	356,067 67	179,042 13	8
Nashua (branch).....	43,065	112,680 89	48,009 94	15
Fitchburg.....	167,816	203,996 36	78,333 76	8
Charlestown (branch).....	14,800	26,814 04	16,276 77	
Worcester.....	253,706	487,455 53	249,729 50	8
Norwich (branch).....	173,230	204,308 45	134,229 03	3
Western ".....	530,201	813,480 15	370,621 25	
Connecticut River (branch).....	15,268	13,521 06	8,001 26	
Hartford (branch).....	14,559	.....	.....
Berkshire ".....	29,359	.....	.....
West Stockbridge (branch).....	4,410	2,311 20	447 52	4
Providence.....	175,203	350,628 97	197,827 11	7
Stoughton (branch).....	4,232	7,810 00	2,904 76	4
Taunton.....	27,988	116,536 99	100,889 95	8
New Bedford ".....	48,040	78,211 12	29,353 76	7
Old Colony.....	2,550	.....	.....
Middleborough (branch).....	17,800	15,796 72	8,205 83	
Total.....	2,111,293	\$3,426,831 80	\$1,694,812 52	

PUBLICATIONS IN BOSTON.

Class of Publications.	No. of Publications.	Square Inches.	Value.
Daily subscription.....	5,075,320	4,786,029,240	\$106,076
Daily penny.....	11,408,000	7,018,617,000	110,400
Semi-weekly.....	1,462,448	1,442,010,336	58,748
Weekly.....	11,610,040	8,738,546,856	334,895
Semi-monthly.....	458,400	216,314,400	31,700
Monthly.....	2,583,600	1,522,477,200	127,190
Bi-monthly and Quarterly.....	37,200	143,076,800	24,500
Annual.....	255,500	265,045,300	31,565
Total.....	32,890,508	24,132,117,132	\$825,074

* True Sun, August 4, 1847.—The reader will find various statistics of the commerce of New York in our back volumes—a subject we shall occasionally resume.

† For these statistics we are indebted to that noble work, the "Census of Boston," got up by public authority, by Lemuel Shattuck, Esq., and published, last year. It should be imitated by every State in the Union. Such a monument would be worthy of our country.

It thus appears that 32,890,508 publications are issued annually from the Boston press, averaging 109,098 daily, allowing 310 working days to the year, valued at \$825 074. These contain 24,132,117,132 square inches, or 3,847 acres of printed sheets, averaging 12 acres each day. Deducting ten per cent. for the margin of the sheets not printed, and there remains 6,926 acres of printed surface which goes out to the public mind, to influence or educate it for good or for ill. And it is supposed that the number of sheets printed for books and other publications, not named in the above account, or not periodical, makes a near approach to the same amount.

CHARITIES OF BOSTON FROM 1830-46.

Religious contributions.....	\$1,120,219 75
Instruction.....	1,161,128 16
General charity.....	2,272,990 51
Miscellaneous.....	438,321 39

Total..... \$4,992,659 81

This not including the private acts of benevolence, which are supposed as much more. Of these donations, \$268,753 83 were given in 1845.

COMMERCE OF BOSTON.

Years.	Imports.	Exports.	Revenue.
1824.....	12,828,253.....	5,036,963.....	4,193,112 81
1825.....	15,231,856.....	6,078,619.....	5,047,814 25
1826.....	12,627,449.....	6,780,577.....	3,988,378 46
1827.....	11,591,830.....	7,322,910.....	4,179,494 67
1828.....	12,540,924.....	7,438,014.....	4,597,176 86
1829.....	9,990,915.....	5,881,717.....	4,167,199 78
1830.....	8,348,623.....	5,180,178.....	3,662,301 78
1831.....	13,414,309.....	5,896,092.....	5,227,592 00
1832.....	15,760,512.....	10,107,768.....	5,524,839 36
1833.....	17,853,446.....	8,062,219.....	3,895,036 71
1834.....	15,614,720.....	7,309,761.....	2,830,172 69
1835.....	19,038,580.....	7,952,346.....	3,624,771 94
1836.....	25,897,955.....	8,475,313.....	4,470,053 73
1837.....	15,027,842.....	7,836,270.....	2,565,830 67
1838.....	13,463,465.....	7,036,882.....	2,411,155 95
1839.....	18,409,186.....	8,013,536.....	3,294,827 65
1840.....	14,122,308.....	8,405,224.....	2,456,926 22
1841.....	18,908,242.....	9,372,612.....	3,226,441 47
1842.....	12,633,713.....	7,226,104.....	2,780,186 04
1843.....	20,662,567.....	7,265,712.....	3,491,019 82
1844.....	22,141,788.....	8,294,726.....	5,934,945 14
1845.....	21,591,877.....	9,370,851.....	5,249,634 00

PROGRESSIVE WEALTH OF BOSTON.

Years.	Real Estate.	Personal Estate.	Total Valuation.	Polls.	Tax.	Tax on \$100
1800....	6,901,000....	8,194,700....	15,095,700....	4,543....	83,428 75....	
1810....	10,177,200....	8,272,300....	18,450,500....	7,764....	144,486 72....	39
1814....	16,557,000....	13,859,400....	30,416,400....	6,636....	131,330 00....	40
1815....	18,265,600....	14,647,400....	32,913,000....	6,457....	157,794 00....	45
1816....	21,059,800....	15,448,000....	36,507,800....	7,755....	157,663 70....	40
1817....	21,643,600....	16,373,400....	38,017,000....	7,497....	163,313 50....	40
1818....	22,321,800....	16,879,400....	39,201,200....	7,699....	172,592 04....	41
1819....	22,795,800....	16,583,400....	39,379,200....	8,030....	169,859 10....	40
1820....	21,687,000....	16,602,200....	38,289,200....	7,810....	165,228 30....	40
1821....	22,122,000....	18,671,600....	40,793,600....	8,646....	174,968 32....	39½
1822....	23,364,400....	18,775,800....	42,140,200....	8,880....	167,583 37....	36½
1823....	25,367,000....	19,529,800....	44,896,800....	9,855....	172,423 60....	35
1824....	27,303,800....	22,540,000....	49,843,800....	10,807....	228,181 65....	42½
1825....	30,992,000....	21,450,600....	54,442,600....	11,660....	201,039 10....	40½
1826....	34,203,000....	25,246,200....	59,449,200....	12,602....	226,975 20....	35
1827....	36,061,400....	29,797,000....	65,858,800....	12,442....	242,946 40....	35
1828....	35,908,000....	25,615,200....	61,523,200....	12,535....	235,115 77....	35½
1829....	36,963,800....	24,104,200....	61,068,000....	13,495....	261,461 10....	39½

Years.	Real Estate.	Personal Estate.	Total Valuation.	Polls.	Tax.	Tax on \$100
1830	36,960,000	22,626,000	59,586,000	13,096	260,967 30	40½
1831	37,675,000	23,023,200	60,698,200	13,618	260,184 89	39½
1832	39,145,200	28,369,200	67,514,400	14,184	298,085 84	41
1833	40,966,400	29,510,800	70,477,200	14,899	321,876 60	42½
1834	43,140,600	31,665,200	74,805,800	15,137	374,292 76	47
1835	47,552,800	31,749,800	79,302,600	16,188	408,899 61	48½
1836	53,373,000	34,895,000	88,245,000	16,719	444,656 65	47½
1837	56,311,600	33,272,200	89,583,800	17,182	473,692 00	50
1838	57,372,400	32,859,200	90,231,600	15,615	465,557 34	49
1839	58,577,800	33,248,600	91,826,400	16,561	543,660 66	56½
1840	60,424,200	34,157,400	94,581,600	17,696	546,742 80	55
1841	61,963,000	36,043,600	98,006,600	18,915	616,412 10	60
1842	65,499,900	41,223,800	105,723,700	19,636	637,779 09	57
1843	67,673,400	42,372,600	110,056,000	20,063	712,379 70	62
1844	72,048,000	46,402,300	118,450,300	22,339	744,210 30	60
1845	81,991,400	53,957,300	135,948,700	24,287	811,338 09	57

5.—LAFAYETTE, LOUISIANA.

It will be observed, that this thriving town has grown up immediately within the corporate limits of New Orleans, and evinces great prosperity. In sixteen months, as was found by the census the other day, an increase of 2,224 has been added to a population of 7,008. The Delta remarks:

"There is another remarkable fact in these returns, which, in the South, will give a peculiar character to the composition of the population of Lafayette—that is, the small proportion of the slave to the free population. The whole number of slaves is about one-eighth that of the whites. This is owing to the fact that Lafayette has been chiefly settled by a laboring population, mostly German and Irish emigrants, who literally fulfil the scriptural command of eating their bread in the sweat of their brow. But this is not the only class which is pouring into this rapidly advancing city. The rear of Lafayette is most beautifully situated for dwelling-houses. The ground is high and dry, and vegetation flourishes on it with amazing luxuriance. Here are collected many of our wealthy citizens, who have built handsome villas, with gardens and large yards, and who seem to us crowded denizens of New Orleans emerging from our little, narrow, damp yards, to be perfect princes of luck and happiness. Here they have elbow-room—fine green plats, for the little ones to scamper and roll upon—trees, to shade and enliven the scene—gardens, redolent of celery and real, sure-enough cabbage—and large commodious one story houses, full of windows on all sides, and without those horrible, knee-cracking stairs, up which the city people are compelled to

'Wend their winding way
Too often in the sultry day.' "

6.—RESOURCES OF TEXAS.

The sleeplessness of our government at this time upon every subject that can concern the national progress must be manifest even to those who deny it all wisdom. The labors of Mr. Walker and Mr. Burke have been *pari passu*. The latter gentleman has lately issued a circular to the citizens of Texas, through the collector, calling for full information upon many important points, which we have long been seeking from the same sources ourselves:

"For instance, the quantity of cultivated, as compared with the uncultivated, land of each county, is desired, and this, it is presumed, is known to the assessor; and the same may be said of many important products. The products enumerated concerning which the information is wanted, are as follows:

Cotton,	Tobacco,	Barley,	Indian Corn,
Rice,	Hemp and Flax,	Rye and Oats,	Potatoes,
Sugar,	Wheat,	Buckwheat,	Hay.

Root Crops—as beets, carrots, turnips, &c., average crop per acre.

Pod Fruits—as peas, beans, &c., average per acre.

Orchard Fruits—as apples, pears, peaches, figs, &c.—productiveness—what attention is paid to them.

Small Fruits—as strawberries, grapes, &c.

Stock Raising—amount of advance or decline—including horses, cattle, hogs, sheep—price of beef, do. of pork, do. of mutton, do. of skins, do. of wool—average weight of fleece, and number of fleeces per year.

Poultry and Eggs—facility of production, price, &c.

Bees and Honey—facility of production, price, &c.

Wages of Labor—agricultural and mechanical.

Cost of transportation to market.

7.—THE WATERING-PLACES OF LOUISIANA.

We condense, from the humorous contributions of our friends of the Delta, a sketch of the beautiful summer retreats which are spread along the coasts of the Mississippi and the Gulf of Mexico, in the immediate vicinities of New Orleans and Mobile. It will be seen, that for some of the good things of life we Southerners in "sultry climes" are not so bad off after all.

I. *Pass Christian*.—First to Pass Christian, the nearest point to New Orleans, and consequently the most accessible and desirable for those city gentlemen who cannot leave the city for any length of time. Here you can get splendid accommodations at the elegant house of our friend Montgomery—successor to Ward—here, too, you have a tolerable good bath, and good fish and oysters, though it is a long-stretch of white beach to the sea. There are a good many private residences and villas here, and many staid and solemn people, who are perfectly satisfied to sit in their balconies, to smoke their Victorias, nurse their appetites, and play out in their imaginations numerous little fishing parties. Boat excursions, lovely storms, snow-capped billows, boats capsized, bold swimming, sharks pursuing, and—but the tragic sequel drives the imagination off into other spheres, and the approaching season, with all its uncertainties—its cotton, sugar and breadstuff operations—the next steamer's news—the crops, the cotton-worm, potato rot, &c., compose the *staple* of our city denizen's reflections, as he looks out upon the ocean from his villa's balcony and views the broad sea, a fit emblem of the uncertainties of trade and commerce.

II. *Mississippi City*.—Next we approach that great invisible town, destined to eclipse our own Crescent City, the only apparent remains of which are the almost endless pier and tottering wharf. But we are told, for we have never trusted our precious bodies on that pier, which the enterprise and genius of the Mississippi speculators erected, to receive the vast produce which was so confidently expected to be landed here for reshipment to Europe—we have never essayed the long journey along that pier, but we understand that when you have once reached the land, there are many pleasant little houses nestled in the live oaks, where you may pass a few weeks very delightfully.

III. *Biloxi*.—Biloxi is the largest of any of the sea-side resorts. Its regular population must be five or six hundred, and its visiting population considerably more than double that number. Biloxi has many advantages. The town is right on the sea; there is no long white beach to traverse before you can reach the sea; and the soil is good, producing vegetables, and a fine growth of trees. Here you can always get a fine supply of fish and oysters, and an abundance of fruit and all other vegetables. There are a half dozen excellent houses in Biloxi.

IV. *Bay of St. Louis*.—This is a beautiful place, where the land is high and well timbered, the country around well cultivated, with fine roads, and an abundance of all the conveniences and pleasures, both of the sea-side and back-country. It is generally resorted to by families, and such families too! To our ancient or creole population, this has ever been an attractive and popular resort.

V. *Pascagoula*.—The place is appropriately called by such a soft and beautiful name. Pascagoula is perhaps the most desirable of all the places on the Gulf, with reference to enjoyments. The bathing is better than at any other place, and the fish, oysters and crabs are more abundant. There is no lack of timber, the live oak and other trees being thickly strewn along the coast, and the situation of the place is very fine. The company at Pascagoula is a pleasant combination, in about equal numbers, of the citizens of Mobile and New Orleans.

8.—AVOYELLES, LA.

The product of this parish the present year will be 1,500 hhds. sugar, from a cultivation of 2,000 acres cane. A writer from this section remarks: "As for commercial advantages, no portion of our great republic is superior to Avoyelles. During a greater portion of the year no planter is compelled to haul his crop more than ten miles. Running through the whole length of its north portion is Red river, through the central part is Bayou des Glaisses, navigable for 70 miles by steam. Bayou Rouge, starting from near the centre of the parish and flowing southward into the Atchafalaya, affords steam navigation; while on the south we are blessed with the same advantage from the Bayou Bœuff, and on the east we have the Atchafalaya. These streams not only afford good navigation, but the richest bodies of planting lands. A great portion of these lands remained as their Creator had left them, till ten years ago. The cane is as fine as anything in the

State, and from experiments made last year, we have every assurance that our planters must prove eminently successful in the cultivation of the sugar-cane."

9.—DISTRIBUTION OF PUBLIC MONEY IN INTERNAL IMPROVEMENTS SINCE 1790.

The following is the amount of appropriations that have been made by Congress to internal improvements, specifying the amount to each State :

Maine.....	\$276,575	Brought forward.....	7,851,304
New Hampshire.....	10,000	Florida.....	287,713
Vermont.....	101,000	Mississippi.....	46,500
Massachusetts.....	526,148	Louisiana.....	717,200
Rhode Island.....	32,000	Arkansas.....	486,065
Connecticut.....	160,407	Tennessee.....	11,920
New York.....	2,632,115	Kentucky and Tennessee.....	155,000
New Jersey.....	28,963	Missouri.....	75,000
Pennsylvania.....	207,981	Missouri and Arkansas.....	100,000
Pennsylvania and Delaware..	38,413	Illinois.....	993,601
Delaware.....	1,038,356	Indiana.....	1,270,734
Maryland.....	55,000	Ohio.....	2,617,662
Maryland, Pennsylvania, and		Michigan.....	645,724
Virginia.....	1,901,228	Iowa.....	75,000
Virginia.....	25,000	Wisconsin.....	167,500
North Carolina.....	370,377	States through which the Ohio,	
Georgia.....	243,043	Missouri, Mississippi, and	
Alabama.....	204,998	Arkansas rivers run.....	1,698,000
Carried forward.....	\$7,851,304	Total.....	\$17,199,223

10.—STATE DEBTS 1847.

The following table will be found useful for reference :

States.	Absolute Debt.	Contingent Debt.	Total Debt.	Annual int. on absolute debt.
Maine.....	\$1,274,285		\$1,274,385	\$76,457
New Hampshire.....	none.		none.	
Vermont.....	279,950		279,950	16,798
Massachusetts.....	1,039,215	\$5,049,556	6,088,771	59,366
Rhode Island.....	152,719		152,719	9,163
Connecticut.....	none.		none.	
New York.....	25,575,570	1,713,000	27,588,570	1,391,992
New Jersey.....	none.		none.	
Pennsylvania.....	40,986,393		40,986,393	2,048,320
Delaware.....	none.		none.	
Maryland.....	11,986,785	1,376,891*	13,363,676	655,421
Virginia.....	7,384,794	1,476,295	8,861,089	641,746
North Carolina.....	none.		none.	
South Carolina.....	3,214,502	2,000,000	5,231,562	170,798
Georgia.....	1,727,760		1,727,760	109,296
Florida.....	3,900,900	950,000	4,850,000	294,000
Alabama.....	9,207,556	4,438,522	13,646,078	557,746
Mississippi.....	2,270,707	5,000,000	7,271,707	128,000
Louisiana.....	1,380,566	14,857,565	16,238,131	78,914
Arkansas.....	2,676,000	1,044,570	3,720,570	160,259
Tennessee.....	3,254,416		3,254,416	473,340
Kentucky.....	4,409,456		4,409,856	258,354
Ohio.....	19,251,180		19,251,870	1,140,707
Michigan.....	4,394,510		4,394,510	266,000
Indiana.....	15,072,080†	1,390,000	16,362,080	607,772
Illinois.....	14,533,969		14,533,969	712,533
Missouri.....	684,997		684,997	73,190
Texas.....	4,856,601	5,092,406	9,949,017	300,000
Total.....	\$179,634,022	44,388,805	224,023,827	9,930,052

* Arrears of interest due Dec. 1, 1845.

† Including \$2,777,220 arrears of interest up to Jan. 1, 1846, and \$1,204,760 of domestic debt, for which treasury notes bearing interest are now outstanding.

The total amount of the debts of the States, in 1842, was \$198,118,736. So that they have increased since that period almost \$26,000,000; but that, to be sure, includes a debt of about ten millions at the charge of Texas, which was not taken into account in the previous estimate. It also includes for arrears of interest about four millions.

COMMERCIAL JURISPRUDENCE.

PRIVATE PROPERTY TAKEN FOR PUBLIC USES.—IMPORTANT RAILROAD DECISION.

THE *manuscript* records of this case were politely furnished us by W. C. Smedes, Esq., one of the Mississippi Reporters, under the request of one of the Judges. It settles an interesting question in our jurisprudence with great ability, and is deserving of general attention and study. We commend it to our readers:

HIGH COURT OF ERRORS AND APPEALS OF THE STATE OF MISSISSIPPI. }
January Term, 1847. }

Patrick Donaher vs. The State of Mississippi.

THERE IS A NECESSARY EXCEPTION IN THE TITLE TO ALL PROPERTY—THAT IF IT BE WANTED FOR PUBLIC USE, IT MAY BE TAKEN FOR SUCH PURPOSE—PROVIDED THAT IN ALL CASES JUST COMPENSATION BE MADE TO THE OWNER.

The Statute incorporating the Jackson and Brandon Railroad and Bridge Company, passed the 5th day of February, 1846, gives power to the company to extend their railroad, so as to intersect or unite with any other railroad, terminating in or passing through the city of Jackson, provided the road be so constructed as not to interfere with the passage of any public street of said city; the statute of 1823 (H. & H. 60) reserves to the legislature the right to dispose of the entire two sections of land, designated by the commissioners to locate the seat of government (the city of Jackson), *except the streets*, and the lots which may be sold from time to time—*held* that the statute of 1823, rests the title to the streets in the corporation of the city, and deprives the legislature of the power to dispose of them, except so far as the *jus publicum*; or the rights of eminent domain may authorize it. The right to the streets, therefore, being in the corporation of Jackson, they cannot be subjected to the use of the railroad, without the consent and contract of the city, or without the assessment and payment of damages according to law.

Whether the owners of lots adjacent to the track of the railroad, would have any right to compensation for damages—*Quere?*

The corporation of the city, no doubt, has the power for the protection of its citizens and their property, to regulate the mode of propelling the cars within its limits—to say whether steam or horse power shall be employed, and to prescribe the rate at which they may move.

D. was indicted in the Circuit Court of Hinds county, for a nuisance in obstructing the streets of the city of Jackson; it was admitted that he had been grading and hauling dirt in the streets of Jackson, under the direction and authority of the Jackson and Brandon Railroad and Bridge Company, in preparing to lay the rails of the road; the defense set up was, that the act of 1836, incorporating the company, gave them the right to run their railroad through the streets of Jackson; and the defendant being in their employ, and doing only such grading and hauling as were necessary to make the road, was not guilty, as charged in the indictment: *held*, that the act of 1823 (H. & H. 60) vested in the city of Jackson the title to the streets within its limits—and deprived the legislature of the power to dispose of, except for public use, and then only upon just compensation—that the company had no right to run their road through the streets of the city, without the consent and contract of the corporation, or without the assessment and payment of damages according to law, and the defense set up, cannot, therefore, be sustained.

Error from the Circuit Court of Hinds County,
HON. GEORGE COALTER, Judge.

This was an indictment preferred by the grand jury of Hinds county against Patrick Donaher, for a nuisance—in digging and subverting large quantities of

dirt in the streets of Jackson, and thereby obstructing the same. The defendant pleaded not guilty. The case was submitted to the court on the following agreed state of facts, to wit:—"In 1836, the legislature of the State of Mississippi passed an act incorporating the President and Directors of the Jackson and Brandon Railroad and Bridge Company, which is herewith referred to and made part of this agreed case." Then follows the act of incorporation, and also the acts incorporating the "Mississippi and Alabama Railroad Company," the "Southern Railroad Company," and the act to revive the "Jackson and Brandon Railroad and Bridge Company." The eleventh section of the first recited act is in these words, viz.: "Be it further enacted, that the said company shall have the privilege of extending said road, and of constructing branches in any direction whatsoever, that they may intersect or unite with any other railroad, terminating in or passing through the town of Jackson, provided the said railroad be so constructed as not to interfere with the passage of any public street of said town—and so much of the land donated to the State by the act of Congress, passed the 20th of February, 1819, for the seat of government, as may be necessary for the passage of said railroad, and as may be selected by the commissioners with the consent of the Governor of the State, and which yet remains unsold, is hereby donated to said company during the continuance of this charter; provided that not more than one acre shall be so donated for the erection of warehouses, or a place of depot, and that said acre of said land shall be located only within two hundred yards of the place where said road shall pass the Pearl river." The agreement then proceeds thus: "It is farther agreed that all the foregoing acts, or any parts thereof, or any other act in relation to said railroad, whether mentioned in this agreed case or not, may be read as a part of this agreed case from the pamphlet acts as printed by the State printers. By virtue of these various acts, the said railroad company claim the right to extend the railroad from the termination of the Vicksburg and Jackson railroad through the city of Jackson to Brandon, and through the eastern part of the State, to connect with the Charleston railroad. It is further agreed, that the land on which the city of Jackson now stands, at and before the laying off of said city of Jackson, belonged to the State of Mississippi. By the act of — the city of Jackson was laid off by commissioners appointed by the State, into lots, with public streets, lanes, alleys, squares, &c. A plan of said city is herewith referred to and made part of this agreed case. It is also agreed, that all the acts laying off the said city of Jackson, or amending the same, shall be considered as part of this agreed case, and may be read from the statute book. It is also agreed, that the various acts of the legislature passed, incorporating the city of Jackson, and amending and modifying its charter, &c.; all of which acts are herewith referred to, and made part of this agreed case and may be read from the statute book. It is farther agreed, that the lots in the said city of Jackson were sold by authority of the State, according to said plan, and are held by individuals. It is farther agreed, that the President, Directors and Company of the Jackson and Brandon Railroad and Bridge Company, laid out the railroad to pass through Jackson to Brandon from the west side of State street, commencing at the point where the railroad from Vicksburg to Jackson has been completed to the piers on Pearl river, where the bridge is to be built, which route as laid off passes across State street in the city of Jackson, to and across South street; thence through part of an acre lot No. 1 South, into and down Commerce street to the lot on which the saw-mill is situated, whence said route passes through individual property—the right of way has been secured by the company. It is farther agreed, that Commerce and State streets are each one hundred feet wide, and South street eighty feet wide, through which streets alone the track will run. The track of the road will be twelve feet wide on the surface, and the rails will be five feet apart—the track when completed may be used by either horse or steam cars. The line of road on Commerce street, will be about a quarter of a mile in length, and about 120 to 125 feet on State street, and about 100 feet on South street. It is farther agreed, that the defendant was and is employed by said railroad company to grade the line of road through the city of Jackson, in pursuance of which contract he is digging and grading on said streets in said city of Jackson, over which said line of road, as laid off by said company, is to run. It is agreed that the acts of the said defendant in digging and grading said streets, constitute a nuisance in law, if said company have no power to run their railroad through and over the said streets in said city; but if said company has such power, then it is agreed that said acts are necessary to make said road through said streets, and do not construct a nuisance. It is farther agreed, that the lots in said city of Jackson,

situated on said streets, were sold by the State to individuals, some of which have been built on and improved; the said individual purchasers, purchased with reference to the plan of said city, and with a reference to the use of the streets, &c., in accordance with said plan. In running said road through the streets, the value of public and private property will be lessened to some extent—that is, to such extent as railroad cars, propelled by either steam or horse power, passing through a street, necessarily impair its use. It is farther agreed, that said streets have not been condemned, or damages assessed against said company for the right of way through them. It is also agreed, that the corporate authorities of the city of Jackson never agreed to, but resisted the right and power of the railroad company to use the streets of the city for the railroad. It is farther agreed, that if upon the foregoing facts the court shall be of opinion that the said company had the power and right to run said railroad through said streets of Jackson, then and in that case, judgment shall be entered up for the defendant. But if the court is of opinion that said company had no such right, then judgment is to be rendered for the State." The court was of the opinion that the railroad company had no right to use the streets of the city of Jackson in the manner claimed by them, and therefore rendered judgment against the defendant. To revise which, he has brought the case to this Court by writ of Error.

GEORGE S. YERGER for Plaintiff in Error.

WILLIAM YERGER for Defendant.

MR. JUSTICE CLAYTON delivered the opinion of the Court:

The agreed state of facts contained in this record, presents this as the prominent question for investigation: whether the Jackson and Brandon Railroad and Bridge Company have a right to construct a railroad through the streets of the city of Jackson, without an assessment and payment of damages for such use of the streets.

The statute incorporating this company, passed February 5th, 1836, gives power to it, to extend its railroad, so as to intersect or unite with any other railroad, terminating in or passing through the city of Jackson, provided the road be so constructed as not to interfere with the passage of any public street of said city. There has been various legislation on the subject of this railroad since, but the above provision has been retained.

The statute of 1823 reserves to the legislature the right to dispose of the entire two sections of land, designated by the commissioners to locate the seat of government, *except the streets* and the lots which may be sold from time to time.—(How & Hutch., 60, sect. 11.—Poin. Rev. 486.) This vests the title to the streets in the corporation of the city, and deprives the legislature of the power to dispose of them, except so far as the *jus publicum*, or the right of eminent domain may authorize it. This right of eminent domain always exists, unless the State has absolutely parted with it, by grant. There is a necessary exception in the title to all property, that if it be wanted for public use, it may be taken for such purpose. But this is always upon the condition that just compensation shall be made to the owner. The principle has its origin in the common law (*The King vs. Ward*, 31 Com. Law Rep., 96); and is enforced by our constitutional provision, "that private property shall not be taken for public use, without just compensation." This principle applies as forcibly to the streets in this instance, as to private property in other cases. In the case of the Tuckahoe Canal Co. *vs.* the Tuckahoe R. R. Co., 11 Leigh, 76, the court says—"It is not perceived that the property of a corporation is less liable to the exercise of the *jus publicum*, than the property of a private individual. In both cases the private right must yield to the necessities of the public, and in both, the public must make compensation for the loss." This was a case of opposite franchises or easements.

In a case in 3 Hill's N. Y. Rep., 570, the court says—"The claim set up is an easement; not a right of passage to the public, but to the *company*, who have the exclusive privilege of using the track of the road in their own peculiar manner. The public may travel with them over the track, if they choose to ride in their cars; but, nevertheless, the company are not the public, nor can they be regarded as standing in the place of the public. They are a private company; an ideal individual, and to be treated as an individual" (*Presby. Soc. in Waterloo vs. Auburn and Rochester R. R. Co.*). That case arose in an effort to subject a public highway to the use of a railroad.

The progress of public improvement and the increase of trade and commerce may render changes in roads, streets, and canals necessary. An easement of one

kind may be made to give place to one of a different character, of more enlarged utility. Great and acknowledged public improvements lead to corresponding changes in the rights to be affected by them; accompanied, however, with the just condition of making compensation.

This case differs from that of the *Lexington and Ohio R. R. Co. vs. Applegate et al.*, 8 Dana, in two essential particulars. The corporation there gave its assent to the use of the streets of Louisville by the railroad—2d, the owners of the lots there claimed compensation. In this case the corporation has not given its assent; and the owners of the lots are not before us. The right to the streets in this case being in the corporation of Jackson, they cannot be subjected to the use of the railroad, without the consent and contract of the corporation; or without the assessment and payment of damages according to law.

At present, we are strongly inclined to the belief, that the owners of lots adjacent to the track of the railroad, will have no claim to compensation. They have no right of soil in the streets; and the charter of the railroad company restricts the use to such bounds as will not interfere with the passage of the streets. Moreover the salutary maxim will apply to the company, that "they must so use their own rights, as not to injure another" (31 Eng. Com. Law Rep., 97; *Dudley's So. Car. Rep.*, 138); this point, however, need not be decided. See 6 Peter's Rep., 514, *Barclay vs. Howell*.

We have no doubt that the corporation has the power to regulate the mode of propelling the cars within its limits, to say whether steam or horse power shall be employed, and to prescribe the rate at which they may move. This results from the same principle, which authorizes it to control the speed of carriages and of horsemen; the principle of necessary protection to the safety of its citizens and their property.

The defendant having failed in his attempted justification, the judgment is affirmed.

MR. CHIEF JUSTICE SHARKEY, concurred.

MR. JUSTICE THACHER, dissented.

FOREIGN COMMERCE.

1.—CONSUMPTION OF WINES AND SPIRITS IN ENGLAND.

[From a paper prepared by Alderman W. Thompson, M. P.]

A return, showing the annual consumption of wines and spirits in England, has been procured by Mr. Alderman W. Thompson, M. P. It appears that last year (1846), 7,711,309 gallons of foreign wine were imported, of which 6,740,316 gallons were retained for home consumption. The quantities remaining under bond on the 5th of January, 1847, amounted to 9,386,262 gallons. It will be interesting to ascertain the relative quantities of different foreign wines which are consumed in this country. The 6,740,316 gallons of wine retained for home consumption last year included 365,867 gallons of Cape (this inferior compound, it is to be feared, is almost exclusively bought up for the purpose of adulterating other wines); 400,506 gallons of French wines, of all sorts; 2,669,798 gallons of Portuguese; 2,602,490 of Spanish; 94,580 gallons of Madeira; 64,578 gallons of Rhenish; 25,312 gallons of Canary; 283 gallons of Fayal, and 508,002 gallons of Sicilian and other sorts. It hence appears that the only three kinds of wine consumed to any great extent in England, consist of Port, Sherry, and Marsala (this last is Sicilian wine, grown on the Bronte estate of the late Lord Nelson), the large consumption of which is to be accounted for from the fact that it strikingly resembles Sherry. The small demand for Madeira will excite some surprise on the part of all who are acquainted with its exquisite flavor; nor do the quantities of Rhenish and French wines appear so large as might be expected from a consideration of their increasing consumption in this country. The total quantity of spirits retained for home consumption last year amounted to 4,254,237 gallons, out of 6,827,043 gallons imported, including 2,362,784 gallons of British colonial rum, 192,331 gallons of East India rum, 123,478 of mixed, 108 gallons of foreign rum (in all, 2,683,701 gallons of rum), 1,504,465 gallons of brandy, 39,883 gallons of Geneva, 7,281 gallons of other foreign and colonial spirits, and 8,907 gallons of Channel Island spirits; 5,310,148 gallons of all sorts remained in bond on the 5th of January, 1847, including 2,997,149 gallons of rum, 1,854,962 of brandy, and 89,302 of Geneva.

2.—STATISTICS OF IRELAND.

The population of the Emerald Isle is stated by a native writer at nine millions, being capable of sustaining double that number, according to Sir Robert Kane, were her wastes reclaimed, fisheries improved, agriculture promoted, and the resources of manufactures and commerce called into play.

The population is divided into 130 unions for poor paupers. The actual occupiers of land are stated at 883,097, with their families, constituting the one-half of the population. Of land-holders, 50,233 occupy between one and two acres; 35,863 between two and three; 45,135, three and four; 52,071, four and five; 86,478, five and six; 40,371, six and seven; 35,849, seven and eight; 32,178, eight and nine; 34,792, nine and ten; 186,555 from ten to twenty acres; 120,618 from twenty to fifty; 42,772 from fifty to a hundred; 15,458 from one to two hundred; 5,947 from two to five hundred; 1,127 from five hundred to a thousand; 284 from one to two thousand; 46 from two to three thousand; 11 from three to four thousand; 3 from four to five thousand; 6 above five thousand acres. Land-holders possessing less than one acre, 124,107.

Seven millions of the inhabitants are Roman Catholics, and two millions Protestants.

3.—COMMERCE OF BRAZIL.

Comparative Monthly and Yearly Statement of Coffee, Sugar, and Hides, exported from Rio de Janeiro in the years 1844, 1845, and 1846.

	Coffee—Bags and Barrels.			Sugar—Cases.			Hides.	
	1844.	1845.	1846.	1844.	1845.	1846.	1844.	1846.
January	129,125	128,968	160,722	344	402	229	35,243	3,149
February	95,817	93,090	114,317	865	201	632	27,310	25,463
March	111,302	80,178	87,697	734	364	561	34,279	15,974
April	98,389	82,019	72,107	907	772	742	38,827	32,872
May	69,792	71,008	121,010	85	681	256	31,512	30,997
June	79,908	63,167	98,460	743	543	259	26,422	20,928
July	73,031	109,687	137,982	791	460	159	34,203	22,144
August	73,165	97,878	145,354	721	523	159	15,635	19,020
September	131,204	109,835	159,004	210	1,156	127	26,818	18,012
October	110,950	127,403	178,306	248	1,681	1,362	11,671	7,580
November	140,669	98,519	94,905	28	1,675	223	25,895	11,993
December	155,739	130,838	152,570	88	1,181	224	46,590	3,730
	1,269,381	1,187,591	1,522,431	5,774	9,641	4,773	354,405	221,862
							429,458	

"The commerce between Brazil and the United States fluctuates very much from year to year, and the value of our imports from, and exports to, Brazil, was larger ten and eleven years ago than that of last year. Our imports from that country are about two hundred per cent. larger than our exports. Most of our exports to Brazil are domestic products. Since 1830, our commerce with Brazil has rapidly increased, and our imports now amount to about six and seven millions of dollars per annum, having in the past fifteen years advanced from two millions to those amounts. It thus appears that there has been a large per cent. increase. Our exports now amount to about three millions of dollars per annum, while in 1843, they amounted to only eighteen hundred thousand dollars.

"The tonnage engaged in the commerce between the two countries is principally American. For the year ending June 30, 1846, two hundred and sixty-four vessels, representing 61,014 tons, entered the ports of the United States for Brazil; and 227 vessels, representing 48,026 tons, cleared from ports of the United States for Brazil. So far as this part of the commercial intercourse of the two countries is concerned, we have the lion's share, but the balance of trade is annually largely against us, and the most extensive markets for the principal products of Brazil are found in the United States. The principal article of export from this country to Brazil is flour. The total value of domestic merchandise exported from the United States to that country, in 1846, was \$2,754,012, of which \$1,675,756 was in the single article of flour.

"Markets for our cotton manufactures, printed, colored, and white piece goods, are steadily increasing, but we have to contend against a powerful competition in similar goods of English manufacture. We receive no favors from the government of Brazil, in return for those extended by our government. The principal exporting staple of Brazil, coffee, enters our ports free of duty, while restrictions are placed upon all of our products entering their ports, of the most onerous character."

THE PUBLISHING BUSINESS.

1. HISTORY OF THE CONQUEST OF PERU, with a preliminary view of the civilization of the Incas. By Wm. H. Prescott.

"Congestæ cumulantur opes, orbisque rapinas accipit." Claudian in Ruf., lib 1, v. 194. 2 vols. New York: Harper and Brothers. 1847.

These able volumes which our distinguished historian has contributed to the press and to the world, have been received everywhere with great enthusiasm. The subject is full of deep interest, blended with the semblance of romance. In our next number we shall do ample justice to the volumes.

2. HALF HOURS with the best authors, by Charles Knight, in 2 parts. New York: Wiley and Putnam. 1847.

These "half hours" are embraced within two handsome numbers of Messrs. Wiley and Putnam's "Choice Reading." They contain complete and interesting passages from the best authors in the English Language, ninety in number, from the days of Spenser down to the present. A short biographical sketch of each of these numerous characters is appended. We know not where to find so much excellent material embraced within so small a compass.

3. THE HISTORY OF SILK, COTTON, LINEN, WOOL, and other fibrous substances; including observations on spinning, dyeing, and weaving; also, an account of the ancients, their social state and attainment in the domestic arts, with appendices on Pliny's Natural History; on the origin and manufacture of linen and cotton paper; on felting, netting, &c.; deduced from copious and authentic sources—illustrated with steel engravings. New York: Harper and Brothers.

This work has been published some months, but we are glad to take occasion of referring to it however late. The curious, antique, and learned information which it contains should make it a very popular one. Every one desirous of tracing the progress of manufactures should have it.

4. THE UNKNOWN COUNTRIES OF THE EAST. MESSRS. WILEY AND PUTNAM advertise a work in press with this title, by Aaron H. Palmer, Esq., New York. As Mr. Palmer did us the honor of reading to us several of the chapters, we can speak with confidence of the ability and value of the work. It will form a large 8vo. volume, embracing brief descriptions of the present state, productions, commerce, religions, languages, &c., of the following countries, drawn from the latest and most authentic sources: Comoro islands, Madagascar, South-east coast of Africa, Abyssinia, Arabia, Persia, Burmah, Siam, Cochinchina; the five commercial ports of China, Singapore, Sumatra, Java, Borneo, Celebes, Papua, Aroo, and Sooloo groups, and Philippine islands of the Indian Archipelago; Loo-choo islands, Corea, Japan, Yezo, and the Kurile islands, Island of Tarakay, or Saghalien, Manchuria, and the river Amur; Chinese and Russian caravan trade with Central Asia, viz.: Mongolia, Soungaria, Chinese Turkestan, Thibet, Ladak, Bokhara, Khiva, Kokhand, and Badakshan; Siberia, its valuable products and rich gold mines; Russian trade with China at Kiakta; Russian American Colonies on the North-west Coast; Oregon, California, Chili, Peru, Bolivia, Sandwich islands, Tahiti, Australia, New Zealand, &c., steam navigation on the Pacific, the practicability of constructing a ship canal through the Isthmus of Nicaragua, &c.

HUNT'S MERCHANTS' MAGAZINE.—"*Hunt's Merchants' Magazine, which is recognized in this country and in England as the best work of the kind ever published, and therefore a good authority to follow.*"—NEW YORK MIRROR, Aug. 30, 1847.

Mr. Hunt's September number is before us. Contents.—Art. I. The Bank Restriction Act, by H. C. Carey, Esq.; Art. II. Commercial Legislation of England; Art. III. The Railways of Italy, by C. Edwards Lester; Art. IV. Commerce of the West Indies; Art. V. Cuba and its Political Economy, by George Ditson; Art. VI. Jurisprudence of Michigan, by C. Townsend; Art. VII. Corporation of Trinity House; Art. VIII. Story's Treatise on the Law of Sales; with the addition of some forty pages of statistical matter, etc., such as is generally found in the work, taken from all sources, and giving it its great value. *What table can escape Mr. Hunt—from what paper, or place, or person?*

A compliment to this able work seems almost in bad taste. Shall one "gild refined gold?" Mr. Hunt requires nothing of this sort.

We gave at our head what the MIRROR says of our friend Mr. Hunt. Courtesy forbids us from introducing in the same paper what the MIRROR, a few days before, said of us. A friend at our elbow suggests, Won't you notice it at all? Notice what?

DE BOW'S COMMERCIAL REVIEW;

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PROVEMENTS, &c.

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PROSPECTUS TO THE THIRD AND FOURTH VOLUMES.

THIS work has been regularly published nearly two years. Its success has been signal throughout the whole SOUTHERN AND WESTERN COUNTRY, and its subscription list steadily and rapidly increased there and in other sections of the Union. In this brief period it has gained a larger circulation than any other Southern work, and the strongest influence. Complimentary letters and notices have been received from every source, even the very highest, as could be shown did space permit. The COMMERCIAL REVIEW has advocated and upheld the

Commerce and Agriculture of the Southern and Western States,
and exhibited from time to time their complete

STATISTICS,

in such a manner as could not but have secured the best results. The papers which have appeared upon SUGAR and upon COTTON, upon TOBACCO and RICE, and MANUFACTURES, upon THE PROGRESS OF OUR COMMERCIAL RELATIONS with all nations, and upon MEXICO, may be stated as examples. Indeed, this has been admitted from many sources. Although devoted in its aims to the development and exhibition of the

Resources of the South and West,
the Commercial Review neglects no view of

American and European Industry and Enterprise,

in every department, and must be of equal value to AMERICAN CITIZENS wherever they are found. Is there a section of the union, too, or an interest which has no concern with the progress and resources of the GREAT WEST, of which the Commercial Review is the faithful exponent?

From the Boston Daily Advertiser.

DE BOW'S COMMERCIAL REVIEW.—The number before us is the first of the fourth volume, being for the present month of September. Three volumes have accordingly been published, which, we learn from the table of contents, must contain a large fund of useful historical and commercial information, relating for the most part to the South-western and Western States, but a portion of it more general in its application. The work is printed in a style creditable to the press of Louisiana, and its contents are such as to render it a valuable adjunct to the similar work devoted to the commerce of the United States, published by Hunt, of New York, the merits of which are not likely to be overlooked or forgotten.

From the New York Evening Post.

DE BOW'S COMMERCIAL REVIEW.—This periodical performs for the South and West the same office which the Merchants' Magazine performs for this part of the country. It has already reached its fourth volume, and we learn that its circulation is rapidly increasing. The present number contains many valuable articles, among which is one by the Editor on the Progress of the Great West, full of interesting statistical information and speculations. It is to the credit of the mercantile class that works of this kind find encouragement among them.

From the New York Tribune.

THE COMMERCIAL REVIEW: BY J. D. B. DE BOW, VOL. IV. No. I.—It has original papers on the Dignity and Importance of Commerce; Progress of the Great West; Progress of American Industry; the True Functions of Government; Debtor and Creditor Laws of Louisiana; the Mission of America; and the Chicago and Memphis Conventions, by Hon. James Hall, Cincinnati, Hon. B. F. Porter, of Alabama, and other well-known writers, with a portrait of Stephen Girard, and a great amount and variety of commercial and industrial statistics. We rejoice that so good a work has been established at New Orleans, and apparently well established. It can hardly fail to secure patrons in every part of the country.

From the New York True Sun.

DE BOW'S COMMERCIAL REVIEW.—Much as we had heard and read of this celebrated New Orleans publication, it was not till the present week that we had an opportunity of making ourselves acquainted with its great merit. We were wholly unprepared to find in this magazine a work evincing so much ability and industry, and containing such a mass of information—commercial, statistical, historical, political, and philosophical. The number before us (for September) contains 142 closely printed pages of reading matter. Such a work, the reader will readily conceive, must be one of universal interest, deserving of unlimited circulation.

From the New York Courier & Enquirer.

DE BOW'S COMMERCIAL REVIEW for September has been upon our table for several days. This work is well worthy of attention, not only in the section of country in which it is published, but at the North, as it contains a great amount of very valuable information which cannot be found elsewhere. It is properly the complement of Hunt's Magazine, and in connection with that work, forms a complete record of mercantile and commercial facts. We commend it to the notice of our readers and to the favor of all who are interested in the commerce of the South.

From the N. Y. Herald.

COMMERCIAL REVIEW.—This is the title of a monthly journal of trade, commerce, commercial polity, agriculture, manufactures, internal improvements, and general literature, published at New Orleans by J. D. B. De Bow, and is well worth the attention of the merchant and the statesman. It is second to no other work of the kind in this or any other country, and must soon become authority for everything relating to matters of which it treats. We noticed among its contributors some of the most distinguished writers in the Union.

From the New Orleans Bee.

REVUE COMMERCIALE DU SUD.—L'excellente publication périodique de M. DE BOW fait à chaque apparition nouvelle de notables progrès sous le rapport de l'intérêt, de la variété et de la valeur des articles qu'elle renferme. M. DE BOW mérite les plus grands éloges pour avoir su réunir en faisceau des travaux aussi nombreux et aussi pleins d'intérêt. Il est difficile de faire aussi bien, presque impossible de faire mieux.